NATIONAL ACADEMY OF SCIENCES

MILTON NUNN BRAMLETTE

1896—1977

A Biographical Memoir by

JAMES GILLULY

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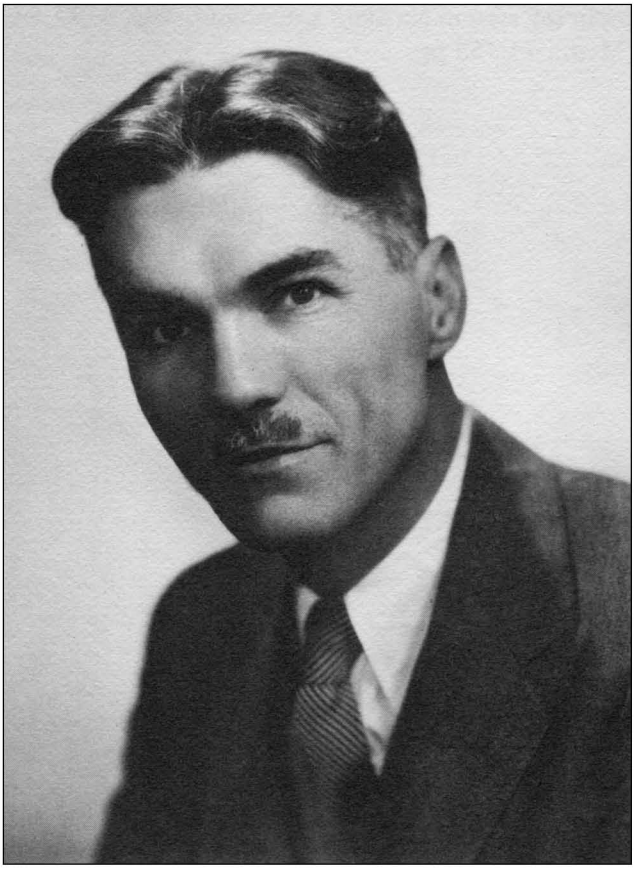

M. N. Bramlette

MILTON NUNN BRAMLETTE

February 8, 1896–March 31, 1977

BY JAMES GILLULY

MILTON NUNN BRAMLETTE—always known to his many friends as "Bram"—was born in Bonham, Texas on February 8, 1896, son of William Ambrose and Eula Lee Nunn Bramlette. His early youth was spent in Texas. He attended Principia School in St. Louis in preparation for college, whence he entered the University of Wisconsin in 1914.

At Madison he came under the distinguished instruction of C. K. Leith, Warren Mead, A. N. Winchell, and W. H. Twenhofel; his principal interest was in microscopic petrography and stratigraphy. His university work was interrupted by World War I. He enlisted in the aviation service, where he qualified as a pilot, but too late in the war to see combat. He was discharged as a Second Lieutenant early in 1919. He returned to Madison, where he graduated with high honors in 1921. During two of the summer vacations of the University he worked on the State Geological Survey, running magnetic traverses across the iron ranges of the north.

In June 1921, Bramlette joined the U.S. Geological Survey, skipping a normal grade because of his high academic standing and field experience, and thus qualifying as an Assistant Geologist. He was assigned to the party of Frank Reeves, on a mapping project in eastern Montana, in and south of the "Missouri Breaks." Here he showed himself to be

a master of plane table surveying and an amazingly expert finder and collector of fossils. While the rest of the party would painstakingly hammer out a few badly mangled fossils, Bram would collect a hatful of beautifully prepared specimens, many worthy of museum preservation. Years later, he was widely known as the sharpest fossil finder in California—a reputation he fully deserved.

During the winter of 1921–1922 Bram commuted with other Survey novices from the Washington headquarters to Johns Hopkins for the famous course in stratigraphy taught by Professor Edward Berry.

As with most new employees of the Survey, Bram was given a series of various assignments to familiarize him with methods and varieties of geology before finding his particular research interests. Accordingly, he served on field assignments in Montana, Kansas, and the Black Hills rim in South Dakota before he began to draw assignments in one of the fields of his major interest—the study of clays. These he began in Louisiana, Mississippi, and Texas, where he discovered many hitherto unrecognized ash flow tuffs. He also found that many of the "heavy minerals," which had been considered as stable under normal sedimentary conditions, were subject to solution or etching and could not be relied upon in correlation studies. He was among the first to recognize the wide distribution of zeolites as cements in clastic sedimentary rocks.

In 1924 Bramlette took leave of the Survey and spent the academic year 1924–1925 in graduate studies at Yale. He then spent three years with the Gulf Oil Company in Latin America: Mexico, Venezuela, and Ecuador. His work was so outstanding that he had for many years a standing offer from Gulf for employment whenever he would prefer it.

Because his employment had been in foreign countries, Bramlette retained his status with the Geological Survey. He

took two more graduate years at Yale and returned to the Survey in 1930. (He received his doctorate in 1936, utilizing one of his outstanding Survey studies as the thesis.)

His work shifted to California, where he began his long and close association with Wendell P. Woodring. These two outstanding stratigraphers supplemented each other perfectly. Woodring, a world authority on fossil molluscs, and Bramlette, the leading sedimentary petrographer—and soon to become an outstanding authority on foraminifera and other microfossils—produced a whole series of classic studies, as fine as have ever been published in North Amerca: the U.S. Geological Survey reports on the Palos Verdes Hills, the Kettleman Hills oil field, and the Santa Maria Valley.

Bram's petrologic studies dealt further with intrastratal alterations of minerals, with phosphatic deposits, and with zeolites. Here he began his classic work on the origin of the siliceous rocks of the Monterey Formation. This problem had fascinated geologists for two generations and theories concerning it were almost as numerous as the students. Bramlette, after thorough studies extending over nearly all the well-exposed sections of the formation, was able to demonstrate that these highly siliceous strata were derived from original diatomaceous strata. The siliceous tests of these tiny animals had been etched, dissolved and redeposited, with great shrinkage, into thinner strata virtually free of identifiable fossils. His arguments have proved so cogent that no further controversy has appeared in the twenty-five years since his publication.

At the same time that Bramlette was dealing with the petrography of the sedimentary rocks, he was also studying their foraminiferal content. He finally became so expert that he could identify many diagnostic species in the field with a hand lens only—a really remarkable feat.

Bramlette also utilized his skill with clay minerals in

diagnosing many deposits of bleaching clays in several of the southern states. He also studied the bauxite deposits of Arkansas and showed conclusively that all were formed in the relatively brief interval between the close of deposition of the Midway Formation and the beginning of deposition of the Wilcox. This sharp limitation on the time of formation of the ore deposit is a matter of prime economic importance. During World War II Bramlette was reassigned to the bauxite problem because our imports were critically interrupted by the submarine attacks. The strategic mineral program of the U.S. Geological Survey led to many significant increases in metal production; none were more successful than this project under the guidance of Bramlette.

Bramlette was a principal investigator, along with W. H. Bradley and Kenneth E. Lohman of the Survey, of the series of "Piggott cores" during the 1930's. The plethora of much longer cores accumulated since World War II has all but buried this pioneer study in oblivion. Nevertheless it was the first real study of seafloor stratigraphy and was highly significant in permitting the first correlation of American with European glaciations.

In 1940 Bram joined the faculty of UCLA, where he remained until 1951, except for two years during World War II. As noted above, he spent one of the war years with the U.S. Geological Survey on the bauxite deposits of Arkansas and Jamaica—both highly successful projects. A second year was spent with Gulf Oil Company in Venezuela.

In 1951 Bramlette transferred from UCLA to the Scripps Institution of Oceanography, also a branch of the University of California, at La Jolla. Here he began his pioneer studies of coccoliths, discoasters, and other nanofossils—studies which he continued for many years after his retirement in 1962. He found that these tiny drifting organisms sink so slowly in the sea after death that currents distribute them

almost worldwide. Furthermore, they evolved so rapidly that the overlapping ranges of large assemblages of these fossils permit highly precise dating; they are virtually worldwide stratigraphic markers. Amazing as it may seem, fossils collected off New Zealand may include the same species as are found off Japan, Gibraltar, Norway, and Brazil. As guides to correlation the coccolithophores are unsurpassed. Bram's contributions to the development of such correlations was preeminent.

Bramlette was not only an extraordinarily skilled microscopist, he was also a superb field stratigrapher. Many experienced field students agree with the writer in considering him the best observer they had ever seen.

The record indicates something of Bram's energy, originality, and versatility. Further, he was a profound scholar, plunging deeply into whatever research he undertook. Conscientious beyond words, in preparing a single lecture on a subject with which he was thoroughly familiar, he would spend entire days in reading and organizing his material. He was a most effective teacher of both stratigraphy and micropaleontology. He insisted on clear distinctions between fossil stratigraphy, time stratigraphy, and lithostratigraphy. Critical of all work, he was most critical of his own. Many former students who have had successful careers in university, government, or industry credit Bram's teaching as most influential in their work.

Bram was married in 1931 to Valerie Jourdan of Bradford, Connecticut. They had one daughter, Emily (Mrs. M. M. Assami, of Damascus, Syria), who survives him, along with her five children. Valerie's death, in 1962, was a great blow from which Bram never really recovered.

He was a member of the American Association for the Advancement of Science, the Geological Society of America, the American Association of Petroleum Geologists, the Min-

eralogical Society of America, the Society of Economic Paleontologists and Mineralogists, and the Geological Society of France.

Bram was elected to the National Academy of Sciences in 1954 and received its Thompson Medal in 1964. He was awarded the Distinguished Service Medal of the Department of the Interior in 1963 and was awarded the degree of Doctor of Laws by the University of California in 1965.

He died of emphysema on March 31, 1977. Throughout life he was a modest gentleman.

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