

Memorial of E. Dale Jackson 1925-July 28, 1978

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Dale Jackson died on July 28, 1978 after a 9-month battle with cancer. With his death, the scientific community lost an impressive gift of insight into the workings of the earth. He left an example of energetic dedication to learning, and a memory of friendship and sensitivity toward his many friends. The published products of his life's work reveal great breadth of interest and mastery of his chosen fields of endeavor, but much more was passed on to his children, colleagues, and students by word-of-mouth and by example.

Everett Dale Jackson was born in Fresno, California in 1925. The difficulty of his early life is revealed by voluntary entry into the Marine Corps at the age of 18. He survived these experiences with a strongly developed sensitivity toward others as well as himself. In 1947 Dale entered the University of California, Los Angeles uncertain of the direction that he would take. By fortunate accident he enrolled in geology and was captured by it. He graduated *magna cum laude* in 1950.

After graduation, Dale married Josephine Arburua. Together, they enlarged the scientific community with a son and twin daughters, each now pursuing a different scientific career with the dedication and care imparted by their parents.

Dale's graduate career was interrupted by a choice opportunity to work with the U.S. Geological Survey mapping in the Stillwater complex in Montana. This work provided the basis of his Ph.D. dissertation, completed in a brief two years between 1959 and 1960. The thesis was published as U.S. Geol. Surv. Prof. Paper 358. It is, without doubt, a landmark in petrology. The Stillwater work exemplified that thoroughness and tireless effort to fill all of the holes that characterized Dale's work throughout his life. The insights that make his contributions to geology of permanent value came from this approach.

In 1962, Dale was assigned to administrative duties in Washington. The one word—NONE—under the item of "Interest in Administrative Position" in Dale's Professional Record is an eloquent final verdict upon this experience. The way out of Washington came in 1963 when Dale filled an immediate and

urgent need to establish a course of geologic training for the Apollo astronauts.

Until July 1963, when Dale took charge of the astronaut training program at Eugene Shoemaker's request, there had been no organized geologic training of the astronauts. When Dale arrived in Houston for a scheduled 2-year stint, he found the astronauts, if not downright hostile to geology, preoccupied by matters more pressing to them. Dale broke the ice in his characteristic fashion: a direct, personal approach under the most informal circumstances he could find—over coffee in the NASA cafeteria. His success in winning the astronauts over was a measure of his ability to communicate the importance of geology in a way that gained the listener's interest and confidence.

The syllabus developed for the astronaut training bears the hallmark of Dale Jackson: it is beautifully organized and complete. These characteristics were products of enormous effort, and of Dale's truly remarkable tenacity that allowed him to direct his full critical attention to a project until every detail was in place.

Dale's relations with the NASA training staff were as strained and difficult as those with the astronauts were easy and mutually respectful. While Dale was tolerant of little foibles, he had no patience with anything that he perceived as a threat to the proper and complete scientific instruction of the astronauts. As one startled observer noted upon emerging from a battleground: "Dale Jackson is a formidable opponent!" He was an equally formidable teacher and scientist.

After only a year in Houston, the political conflicts were such that Dale left the training program. His interest in lunar science remained strong, however, and the personal relations he had established with the astronauts were unruptured. At that time Dale began his classic work on xenoliths in Hawaiian basalts, again displaying the care and thoroughness that characterized his work: who else would systematically describe literally tens of thousands of xenoliths, avoiding the temptation to jump to early conclusions? While one might be inclined to temper his

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