



## Moon Stories

### John Halajian

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How does a Harvard-educated civil engineer with knowledge of soil engineering end up participating in NASA's effort to land a man on the moon? John Halajian tired of his commute from Levittown, New York, to Manhattan, so he applied for a position at Grumman Aircraft Engineering Corporation in nearby Bethpage, Long Island.

Moon Stories is a chronological history of the author's experiences with Grumman, especially its NASA contracts. Halajian writes, "I played a minor role in the great epic drama of extra-terrestrial exploration, but a role nevertheless in what turned out to be probably the greatest technological achievement in a century of technological achievements." The author worked in Grumman's "Hanging Gardens," a unit where practical engineering met theoretical science. Halajian's prose can be technical at times, straying toward scientific terminology, but his work will be understandable to those interested in a detailed account. For example, about his approach to the idea that any object landing on the moon would sink into a sea of dust, as some scientists feared, he writes:

I went back to basics and realized that earth soils, unlike moon soils are a "multi-phase" system consisting of solid particles, pore fluids (air and or water), and, according to some theorists, a mysterious "adsorbed" film coating each particle and inhibiting their solid-to-solid contact. Then I reasoned that moon soils would be a monophasd system of solid particles only.

This led to a series of experiments in low gravity and vacuum in order to understand how, for example, a wheeled vehicle might fare on the lunar surface.

The author's second major NASA-related project at Grumman was the development of the Digital Photometric Mapper, essentially the technological ancestor of the modern digital camera. Halajian's book gives equal credit for the invention of this device to a Grumman colleague, H. B. Hallock. Together the two did extensive mapping of the moon with the use of the University of Arizona's large telescope on Mount Catalina.

Their work went on to win the Admiral Karo Award from the Society of American Military Engineers. Despite this, Halajian's memoir ends with a sense of melancholy as he laments the lackadaisical post-Apollo efforts in space exploration.

Born in Syria and educated first at the American University in Beirut, the author immigrated to the US and earned a master's degree from Harvard. While he expresses a deep appreciation for his Armenian heritage, he notes that only Western culture, particularly that of his adopted country, made possible the landing of man on the moon. He writes, "The forces that propelled Americans to the moon included a heavy dose of pioneering spirit and enormous individual courage."

Halajian was one of those pioneers. His book will provide historians with a valuable record of the grinding, day-to-day work necessary to make that "one giant leap for mankind."

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