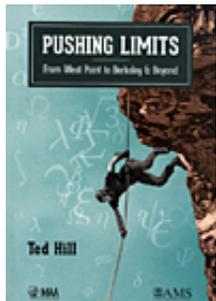


Pushing Limits: From West Point to Berkeley & Beyond



Ted Hill

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MAA REVIEW

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[Reviewed by William J. Satzer, on 08/14/2017]

Picture Indiana Jones as a mathematician. The life described in this memoir is a good deal more complicated and nuanced than the movie hero's, but its author is no less a stereotype-breaker. This book takes us from Ted Hill's years as a cadet at West Point to his retirement. Almost nothing he did followed a conventional path. He worked very hard to become a mathematician, evidently quite a good one, but that's just one part of the story.

After a year at the University of Wisconsin, Hill got an appointment to the United States Military Academy at West Point. He did this, it appears, not so much for a love of the military life as for an education he could not otherwise afford. He says that West Point was America's foremost institution for higher learning in mathematics in the mid-1800s, and that its respect for the power of analytical thinking has continued to the present.

Survival at West Point called for much more than mathematical ability. Hill tells of his initiation there, the first year hazing and four years of severe restrictions on every aspect of life. He notes that he made the Dean's List at the same time that that he was placed on the Deficiency List (for failing the Tactics course that he hated). Through West Point and indeed the rest of his career, Hill is notable for being resourceful and rebellious, adventurous and lucky. He graduated with a degree in engineering and was commissioned while narrowly avoiding several opportunities to be thrown out for one stunt or another.

During graduation leave from West Point he headed to the Peruvian Andes to prospect for gold despite the presence of bandits and serious anti-American attitudes. For the rest of his career he traveled whenever he could to an amazing variety of places. These include a hair-raising trip by car to Eastern Europe and the Soviet Union during the Cold War, hitchhiking in Uganda in the time of Idi Amin, and trips to the Bahamas for solo night dives on remote reefs.

Following West Point Hill spent two years at Stanford getting a Masters degree in operational research. He then went back to required intensive training at the U.S. Army Ranger School; he remarks that

Ranger school taught him the sort of mental toughness he needed later to survive Berkeley's mathematics Ph.D. program.

After that was a tour in Viet Nam. He was not a supporter of the war and no less a maverick than he had been at West Point, but he performed honorably. Hill is skilled with stories and anecdotes and the book is filled with them. Here he uses them to capture the horrors and absurdities of his Viet Nam experience.

After he left the Army, he taught briefly in St. Louis and had a Fulbright year in Göttingen. Then he went to Berkeley to begin work on a Ph.D. His thesis advisor there was Lester Dubins, a demanding mentor with a hard problem on Markov strategies. Berkeley also gave him many opportunities for non-mathematical adventures, but he solved the problem, finished his Ph.D., and got a job at Georgia Tech.

Hill had a reputation as an excellent teacher at Georgia Tech with a strong research and publication record. His best-known research is probably his work on Benford's Law (on the surprising distribution of leading digits in data sets). He negotiated an early retirement from Georgia Tech after a nasty incident where he spoke up as a whistleblower on a matter of principle and was nearly fired.

This is a remarkable memoir, one unlikely to find its match in the diversity of experiences it describes. Hill is a master storyteller. He notes in the preface that his book was four decades in the making, and it's clear that he was collecting stories the whole time.

Bill Satzer (bsatzer@gmail.com) was a senior intellectual property scientist at 3M Company. His training is in dynamical systems and particularly celestial mechanics; his current interests are broadly in applied mathematics and the teaching of mathematics.

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