

# The Next Generation of Army Aviation Systems



Sikorsky UH-60 Black Hawk    Bell OH-58D Kiowa Warrior    Hughes AH-64 Apache

## Book 2

### “Development of the Next Generations of Army Aviation Systems”

Book #2 of Trilogy: *A Full Lifetime Career of Seeking Perfection driven by Family and Mentors*

**By Daniel P. Schrage**

## PREFACE TO BOOK 2 OF TRILOGY

After I returned from Vietnam in February 1971 I attended the nine month Field Artillery Officers Advance Course at Fort Sill, OK starting in March 1971. It was a good time to spend with my growing family as well as for Nancy and me to re-acquaint with some classmates and their wives from our days at West Point. This was followed by attending graduate school at the Georgia Institute of Technology. This provided me a transition from an active duty operational officer to an active duty aerospace engineer with a subsequent assignment to the Army Aviation Systems Command (AVSCOM). This assignment was timely as Army Aviation was initiating the development of the 3<sup>rd</sup> generation of Army Aviation Systems, Figure 1. It was an excellent opportunity for me to apply lessons learned from my experiences as an Army Aviator in planning and conducting airmobile operations in South Vietnam and Cambodia.

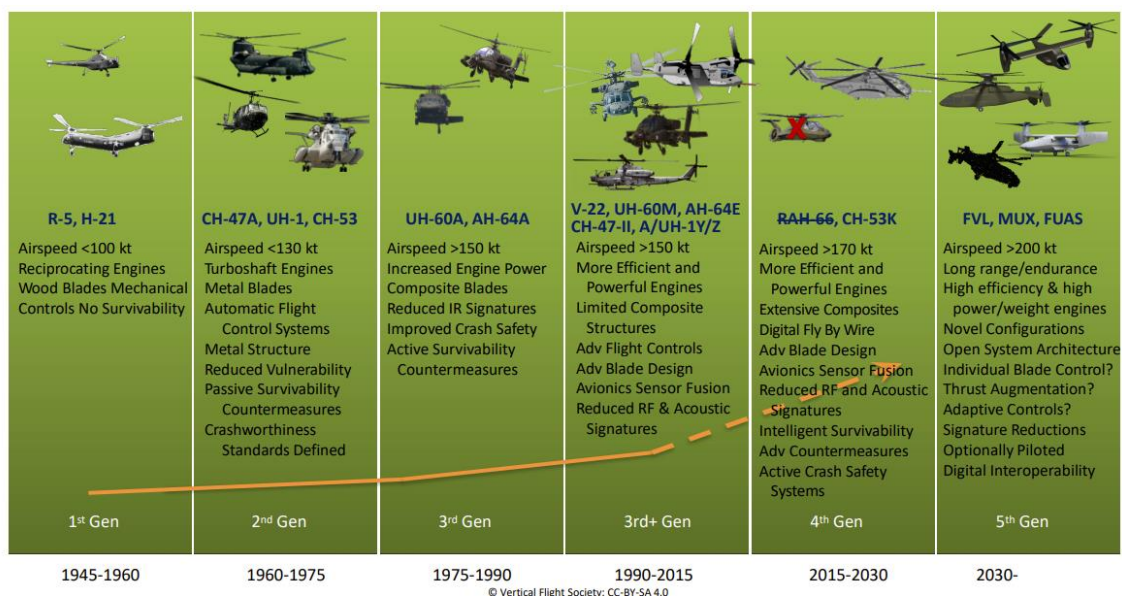


Figure 1. Rotorcraft Generations

Illustrated in Figure 2 is a summation of Army Rotorcraft Generations development over the past fifty years. It begins with the Army Big Five Program in the 1970s with the Army Utility Tactical Transport Aircraft System (UTTAS) and Advanced Attack Helicopter (AAH) Programs to replace the Vietnam helicopters, e.g. UH-1 Huey Utility Helicopter and AH-1 Cobra Attack Helicopter. In the late 1970s there were modification programs for the modernization of the OH-58C Scout Helicopter to the OH-58D Kiowa Warrior and the CH-47C Cargo Helicopter to the CH-47D Chinook. In the early 1980s the Light Helicopter Experimental (LHX) began Concept Exploration for the new development of a light Scout Attack (SCAT) and a Light Utility Helicopter (LUH) aircraft. The initial plan was to replace approximately 4500 Vietnam helicopters, e.g. OH-58/OH-6 scout helicopters, UH-1 utility helicopters and AH-1 attack helicopters. I played major engineering roles in the development of the UTTAS and AAH programs as the Aeroelasticity, Dynamics, and Vibrations (ADV) evaluation engineer during their prototype development and on their Source Selection Evaluation Boards (SSEBs) from 1974 to 1978.

## Book 2. Development of the Next Generations of Army Aviation Systems

### Key Question

*Why has it been so hard for the Army to develop and field new Aircraft Systems?*

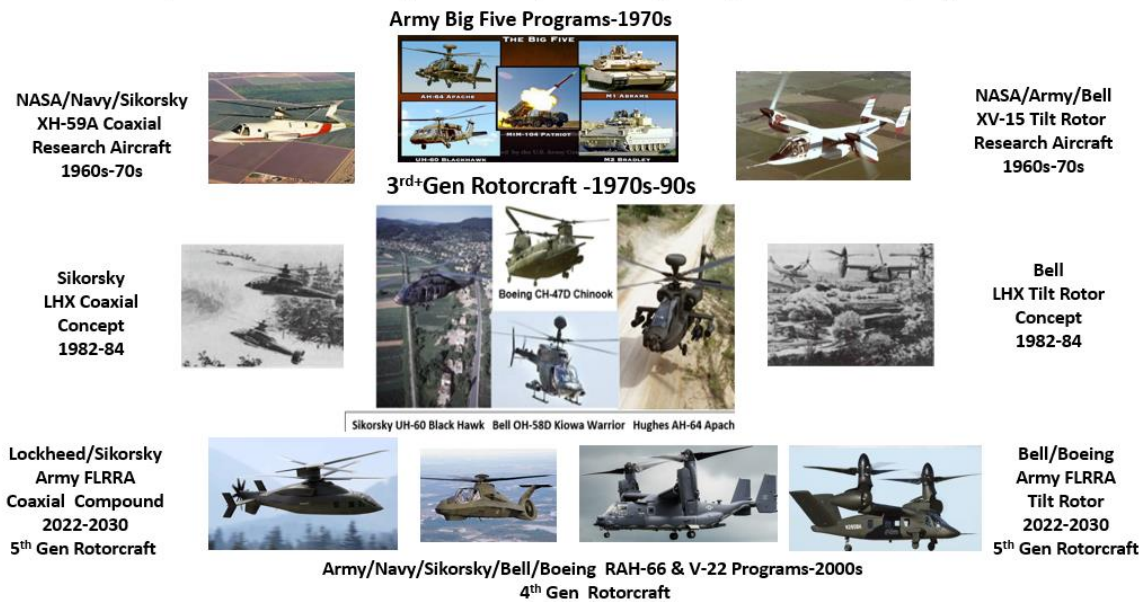


Figure 2. Previous and Next Generations of Rotorcraft

In 1978 the Research and Development (R&D) elements of the Aviation Systems Command (AVSCOM) were broken out and became the Aviation Research and Development Command (AVRADCOM). I then transferred from Army active duty to the Army Reserves and converted to civil service. I became the Chief of the Aeromechanics Branch and was the technical lead for the OH-58D Kiowa Warrior Development and SSEB program. In 1979 I became the Chief of the Structures & Aeromechanics Division in the Development and Qualification Directorate, AVRADCOM and led the technical development and airworthiness qualification of CH-47D Chinook Modernization Program. My participation in these two programs are addressed later in the chapters in Book 2. In 1980 I was selected for Senior Executive Service (SES) Level 3 and became the Director for Advanced Systems (DAS) and Associate Technical Director for AVRADCOM Science and Technology (S&T) Program. At age 37, I was the youngest SES in the Army Material Command (AMC). In this position I led the Concept Formulation for the LHX Program in 1982-84. In addition, in 1983 I became the Acting Chief Scientist for the Army Combined Arms Center (CAC) on a six months temporary assignment at Fort Leavenworth, KS. These activities will also be addressed in chapters in Book 2. In addition, from 1974 to 1978 I received two advanced degrees; first, a MA Degree in Business Administration from Webster College in 1975 and a DSc in Mechanical Engineering from Washington U. (St. Louis) in 1978. In addition, at the end of Book 2, I will also address my two Army Reserve positions beginning in 1978 in the Army Reserves; first, as a Mobilization Designee (Mob Des) in the Department of Mechanics, USMA; second, as Military Academy Liaison Officer (MALO) with the USMA Admissions Directorate. In January 1984, I left civil service at AVRADCOM and became the Rotorcraft Design Professor in the School of Aerospace Engineering, Georgia Tech and Associate Director of the Army sponsored Center of Excellence in Rotorcraft Technology (CERT). Finally, in Book 2 I will try and answer the question, “*Why has it been so hard for the Army to develop and field new Aviation Systems*”. It is still a major issue today with the Future Vertical Lift (FVL) Program.