In Memoriam: Albert Z. Kapikian, MD, 1930–2014

David M. Morens and Anthony S. Fauci
National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, Maryland

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With the death of Albert Zaven Kapikian, aged 83 years, on 24 February 2014, the infectious diseases community lost a treasured colleague, and the world lost a major scientific contributor to the great era of viral disease discovery of the mid-20th century.

In the 1950s, medical virology began to flourish, when it was learned that viruses could be propagated in tissue culture. The next 2 decades saw the discovery of most medically important human viruses known today and the development and licensure of vaccines against them. Millions of children began receiving immunizations each year, resulting in marked reductions in morbidity and mortality due to diseases such as polio and measles.

At the forefront of this research was the Laboratory of Infectious Diseases (LID) at the National Institute of Allergy and Infectious Diseases (NIAID) of the National Institutes of Health (NIH). Viral disease research needed curious and creative young medical scientists willing to learn the novel techniques that enabled the discovery of infectious disease agents. Al Kapikian was just such a person when he joined the LID in 1957.

At that time, the LID was full of visionary men of science, including Joseph A. Bell and Robert J. Huebner, Al’s early mentors. Robert M. Chanock, a whiz kid protégé of Albert Sabin, had just joined the LID [1]; he became Al’s lifelong friend and collaborator. The discoveries made by these men and their NIH colleagues, among them Robert Purcell, reflected the prodigious output of a close-knit, restlessly energetic research team.

For nearly 6 decades, Al’s discoveries and advances resulted in a steady stream of >450 publications and >60 patents. Notably, he and his colleagues identified the first known norovirus [2] and hepatitis A virus [3], using the novel technique of immune electron microscopy. Al and collaborators went on to characterize many human gastrointestinal viruses, including noroviruses, hepatitis A virus, and rotavirus subtypes. He also contributed to defining the disease then known as non-A–non-B hepatitis, eventually helping to characterize hepatitis viruses C and E as the major causes, respectively, of its parenterally-transmitted and enterically-transmitted forms [4,5]. Al also helped characterize respiratory diseases caused by agents such as respiratory syncytial virus, parainfluenza viruses, and rhinoviruses, discovering in the process new viruses associated with the common cold. He trained, mentored, and influenced numerous scientists who went on to great accomplishments and who, in turn, trained and inspired many others. This lineage resulted in a prominent, multigenerational scientific family whose members were, without exception, devoted to their mentor.

Of all his accomplishments, Al is perhaps best known for his decades-long quest to develop the first rotavirus vaccine. The intent was to use the vaccine to help prevent many of the approximately 50,000 rotavirus-associated hospitalizations and 20–40 deaths among millions of US children infected annually. Called Rotashield (Wyeth Laboratories), the vaccine—a live rhesus rotavirus tetravalent reassortant containing distinct VP7 genes representing the 4 predominant human serotypes—was licensed in 1998 for all US infants. Al’s focus was not just on US children, however. Each year, rotavirus killed 500,000 to 1 million children globally, mostly in developing countries. Simultaneously with rotavirus vaccine development and licensure in the United States, Al and others were working tirelessly with philanthropic organizations to bring the new vaccine into global use and thereby stop a major childhood killer. In 1998, this goal seemed imminent.

However, in 1999, after only 9 months of use in the United States, Rotashield was withdrawn from the US market when provisional postlicensure data and controversial public health decision-making processes linked it to postvaccination intussusception [6]. Subsequent analyses suggested that the intussusception risk was minimal or, arguably, even nonexistent and that the benefits of Rotashield vaccination likely outweighed a very low risk of hospitalization or death from...
intussusception. Nevertheless, Rotashield was permanently withdrawn from US use, ending plans for global vaccination with this specific product, as well. Al was extremely disappointed but continued to work tirelessly on newer rotavirus vaccines in collaboration with colleagues around the world. Two second-generation rotavirus vaccines based on his vaccine strategy were licensed in 2004 and 2006, and today national and global vaccination against rotavirus disease is being reestablished, with significant reductions in diarrhea-related morbidity and mortality in settings where the vaccines have been made available [7, 8].

Dedication to the well-being of children was evident in almost all of Al’s work. One of his first scientific efforts was a study of the infections of children in Junior Village, the public orphanage of Washington, D.C. He treated the abandoned children like his family and talked about them warmly until the end of his life. Al’s own family attributes his lifelong passion for helping children to 2 childhood experiences. The first of these was his boyhood responsibility to care for his baby sister, partially paralyzed from the neck down following a medical procedure. The second profound influence was his parents’ harrowing escapes from the 1915 Armenian genocide, including their reminiscences of forced marches, corpses of small children lying by the roadside, and the countless children who survived as orphans. His father’s historical account of these horrors [9], along with the reminiscences of many other Armenian community members, became central to Al’s identity, his view of the world, and his passionate need to help those who are less fortunate.

Outside of work, Al had many other passions, as well, especially the family he warmly nurtured. His recollections about meeting and courting the beautiful and creative young woman who would become his wife (the artist Catherine Kapikian, née Andrews), recounted 50 years later, were still moving in their boyish disbelief that a woman so remarkable would choose him over all other suitors. Their marriage of 54 years produced 3 sons and two grandchildren. Al was a playful, adoring, and indulgent father who rarely missed Little League games and often surprised his sons by bringing to the ball field famous scientists who happened to be in town. Al also played the violin and loved classical music almost as much as he loved baseball. For many years, he and Catherine took the train to New York City to attend weekend performances of the Metropolitan Opera. Weekdays, between operas, he would flag down NIH colleagues to enthuse about a notable staging or performer or to compare observations about recordings of opera performances. His comments were invariably positive and generous even when music critics were unimpressed.

An avid New York Yankees fan who once penned a virology text chapter comparing science to baseball [10], few knew that Al Kapikian was also the legendary “Al from Rockville,” the baseball fan who, for decades, called in regularly to the radio/television show of baseball historian Phil Wood to discuss the game with listeners around the country [11]. Near the end of his life, Al, an ardent pacifist, became passionate about eliminating violence from baseball and particularly collisions between base runners and catchers at home plate. His last 3 call-ins to Wood’s program (in December 2013) addressed this subject. Coincidence or not, on the day Al died, Major League Baseball executive vice president Joe Torre announced a ban on home plate collisions (Rule 7.13) [12].

No remembrance of Al Kapikian would be complete without describing his remarkable kindness. No person was too insignificant, and no problem of a friend or colleague was too small. Adjectives used to describe Al, in introductions, nominations, news reports, and now eulogies, cover almost every human virtue imaginable. To spend even a few minutes with Al Kapikian was to come away feeling valued and enriched.

Al Kapikian was born 9 May 1930 in New York City. He went to Queens College in Flushing, where he was a star forkballer and 2-time most-valuable player on the baseball team (Figure 1), graduating cum
laude in 1952. After receiving his MD degree from Cornell Medical College in 1956, he did a rotating internship at Meadowbrook Hospital in Hempstead, New York. Subsequently he joined the NIAID LID, where he remained for 57 years, serving for 31 years in the US Public Health Service. He was named both LID assistant chief and LID chief of epidemiology in 1967. From 1977 until his death he also was professor of child health and development at George Washington University School of Medicine and Health Sciences. Among many prestigious honors, Al was awarded the Stitt Award of the Association of Military Surgeons of the United States (1974), the US Department of Health and Human Services Distinguished Service Medal (1983), and the Albert B. Sabin Gold Medal (2005); received the DSc (honoris causa) from Queens College of the City University of New York (1999); was elected to the honorary American Epidemiological Society and served as its president in 1996; and presented the 1999 Joseph J. Kinyoun Lecture at the NIH, which honors the institution’s founder.

But awards were not Al’s motivation; it was the joy of living and the love of others that brightened him most. His natural state was to be happy, open, and generous. He laughed easily and often, a soft gentle chuckle with a merry twinkle in his eyes. Many things excited him, but his enthusiasm was restrained and reflective. He was modest and reserved, without being shy. His eyes were soft, caring, and welcoming to all. He was quietly wise. He never spoke unkindly about anyone.

The scaling-up of rotavirus vaccination and the promise that countless children would be spared from disease and death due to rotavirus disease brightened his last days. He also lived to see development of an effective hepatitis A vaccine and curative treatments for hepatitis C—advances that have saved and will save tens of millions of lives—as well as promising norovirus vaccine candidates. These advances, which built on Al’s discoveries, will secure his place in the history of medicine.

We and Al’s other colleagues remember him first and foremost not as the important biomedical scientist he unquestionably was, but as a remarkable and unforgettable person who clearly saw, in his job as a scientist, the opportunity and privilege to help make the world a better place.

Note
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