

RETROSPECTIVE

William C. Dement (1928–2020)

Father of sleep medicine

By **Rafael Pelayo** and **Philippe Murrain**

William C. Dement, one of the founders of sleep science and medicine, died on 17 June. He was 91. Bill devoted his life to helping the public appreciate the importance of sleep health. His pioneering work, which included the discovery of rapid eye movement (REM) sleep, touched countless lives.

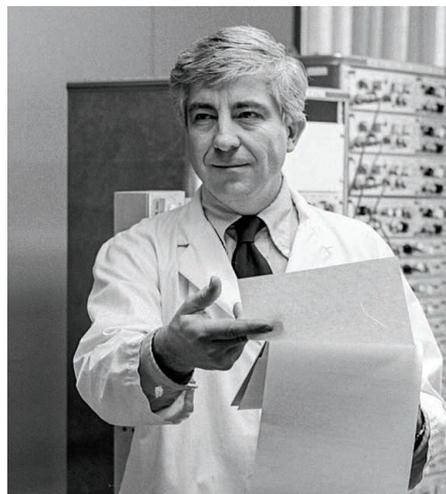
Born in Wenatchee, Washington, in 1928, Bill earned a bachelor's degree from the University of Washington in Seattle in basic medical science in 1951. He then started medical school at the University of Chicago, where he conducted groundbreaking work even before receiving his M.D. in 1955 and his Ph.D. in neurophysiology in 1957. He earned his medical license at Mount Sinai Hospital in New York City and then stayed on to continue his sleep research. In 1963, Bill joined the psychiatry department at Stanford University in Stanford, California, where he remained for the rest of his career.

Bill first encountered sleep research at the University of Chicago, where he joined the lab of physiologist and sleep researcher Nathaniel Kleitman. A fellow graduate student, Eugene Aserinsky, had begun to study eye movements in sleep in 1953. Bill helped discover and describe REM sleep, a term he later coined. From 1954 through 1957, he described the relationship between REM sleep and dreaming, established the all-night sleep patterns in human beings, discovered REM sleep in animals and newborn babies, and demonstrated that the patterns of specific rapid eye movements are related to the visual dream experience.

Upon completion of his internship at Mount Sinai Hospital, Bill obtained a research grant to establish a sleep laboratory, which he housed in his apartment. His ingenuity and persuasive powers were evident in the grant stipulations: Because the sleep research took place at night and he needed to be near his young family, the funding covered half of his apartment rent. Among the research subjects coming to his sleep research lab were members of the Radio City Rockettes. In 1960, he published a paper in *Science* based on that work, in which he described the effect of dream deprivation.

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In 1963, Bill developed a sleep research program at Stanford that drew international attention. He collaborated with many of the scientists who would move the new field forward, including neurophysiologists Michel Jouvet and Christian Guilleminault. In 1970, he opened the Stanford Sleep Disorders Clinic. Bill invented the term polysomnography to convince insurance companies to reimburse patients for the costs of clinical sleep studies. This coding change, from experimental treatment to



sanctioned medical procedure, marked the beginning of the modern field of clinical sleep medicine.

Bill helped create the multiple sleep latency test, now the international standard for evaluating all forms of hypersomnia, and he established the use of clinical sleep studies in pharmacology trials. Sleep-onset REM periods, another of Bill's discoveries, became a pathophysiological marker of narcolepsy. His narcoleptic dog colony at Stanford eventually helped establish the cause of narcolepsy in humans. REM sleep phenomena have now been uncovered in dragon lizards, fishes, and even cephalopods, broadening the influence of Bill's work to more than half a billion years of animal evolution.

As the field's founder, Bill worked to provide sleep research with the necessary resources. He helped found the Sleep Research Society in 1961 and the Society for Neuroscience in 1969. He published *Sleep*, the first journal devoted to the field. The

founding president of the American Sleep Disorders Association (now the American Academy of Sleep Medicine), he served in that role for 12 years. He created Stanford's incredibly popular university course *Sleep and Dreams*. Out of necessity, he wrote the first college textbook on the subject. Bill was such a pioneer that he had to sign his own certificate when he became board certified in sleep medicine.

An intellectually curious and bold man who took advantage of every opportunity, Bill anticipated the great potential for the sleep field to improve public health and worked tirelessly to promote it. He chaired the National Commission on Sleep Disorders Research, advocating awareness of sleep conditions, and spurred Congress to establish the National Center on Sleep Disorders Research at the National Institutes of Health. His work raising awareness about the dangers of drowsy driving and drowsiness in the workplace has undoubtedly saved innumerable lives.

I (R.P.) met Bill in 1993 when I applied for a fellowship at Stanford. When the famous Dr. Dement burst into the room and extended his hand, he immediately put me at ease. From that day on, Bill always made me smile. Later, we co-taught his *Sleep and Dreams* course, traveling together to class in his golf cart. Bill was just as welcoming to me (P.M.). When I met him in 2005, I was shocked that he asked me, a junior faculty member, to share my opinions about how to improve the definition of sleep. Kind and generous to colleagues and students alike, Bill had a positive energy and good humor that motivated everyone who worked with him.

While stationed in Japan as a journalist for the army after World War II, Bill performed professionally as a jazz musician. Surrounded by talented young musicians such as Ray Charles and Quincy Jones, Bill later would say that he realized he could "make a better living as a mediocre physician than as a mediocre musician." However, he never lost his love of performing. When asked, he would sing a cappella to the students in class. His musical performances were often the highlight of our professional conferences.

Bill served as a role model by always keeping an open mind and embracing scientific inquiry with the goal of helping others. A living legend, beloved by his friends and family, he enjoyed his celebrity status. He died secure in the knowledge that his colleagues and students would honor and carry on his work. Sleep researchers have lost a giant, but Bill's legacy will guide the field as it continues to grow. ■

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