

Obituary

**Coenraad F. A. Moorrees**  
**1916–2003**



Coenraad F. A. Moorrees, DDS, Chief of Orthodontics at the Forsyth Dental Center in Boston from 1948 to 1989 and Professor of Orthodontics at the Harvard School of Dental Medicine from 1964 to 1987 died at age 87 years on October 28, 2003 in London, England after a brief illness. Several weeks earlier, he and his wife Louise had moved from the Boston area, their home for over fifty years, to London to be near their son, Alexander. In addition to his wife and son, he is survived by a daughter, Oni Moorrees Berglund, and a granddaughter, Alexandra Berglund, both in California. His ashes were returned to The

Netherlands, completing a remarkable life's journey of adventure and accomplishment where it had begun.

It was a perilous time in Europe when Coenraad Moorrees received his dental degree from the University of Utrecht in 1939. His interest in furthering his education in the United States led the newly married Coenraad and Louise Moorrees to the University of Pennsylvania, School of Dentistry where he earned a D.D.S. degree in 1941. From there, the Moorreeses moved to Rochester, New York, where Dr. Moorrees entered the Eastman Dental Dispensary to begin a two-year internship, which was abruptly ended

by the personal ordeal served them by World War II. After the war, they returned to America, this time to Boston at the invitation of Dr. Percy R. Howe, director of the Forsyth Dental Infirmary for Children. Dr. Moorrees completed his orthodontic studies at Forsyth in 1947 and was asked to stay on as Acting Chief of its Orthodontic Department. In 1956 he became Chief of the Orthodontic Department there and, three years later, was appointed Associate Professor of Orthodontics at the Harvard School of Dental Medicine, advancing to the rank of full Professor in 1964. At the time of his death, Dr. Moorrees held the positions of Professor of Orthodontics, Emeritus, at the Harvard School of Dental Medicine and Senior Staff Member, Emeritus, at the Forsyth Institute.

In 1948, Dr. Moorrees was thrust into a scientific adventure that would set the direction for the rest of his illustrious career. Earnest A. Hooton, Harvard University's renowned physical anthropologist, asked him to be the odontologist on an expedition from the Peabody Museum to study the dwindling indigenous population on the Aleutian Islands. For three months, the team of scientists recorded detailed cultural and physical aspects of most of the 156 Aleuts who inhabited the island chain at that time. Dr. Moorrees carefully made dental impressions, constructed plaster casts and collected data and observations on the dentitions he examined. Several months later, he presented Professor Hooton with a preliminary report of his findings. Within a short time, an impressed Hooton called him to say, "Take your papers to the Harvard University Press." Dr. Moorrees spent the next few years refining and expanding his findings in collaboration with some of his colleagues at the Forsyth Dental Infirmary. He often credited his early success in such research studies to the encouragement, resources and independence he was given at Forsyth. His multilingual fluency was another advantage, in this case providing him immediate access to the rich European literature in dental anthropology. The result was his groundbreaking monograph, "The Aleut dentition, a correlative study of dental characteristics in an Eskimoid people," published by Harvard University Press in 1957.

His second important book came in rather quick succession. Moorrees had learned in 1948 of a collection of longitudinal dental casts from the 1930s in the possession of Dr. Harold C. Stuart at Harvard's School of Public Health. The dental casts were part of a child-health study following 132 subjects from birth through adolescence. The sheer volume of material defeated all who earlier tried to study this special sample. Unlike his failed predecessors, Coenraad Moorrees saw this longitudinal sample as a key to unlocking the dynamics of childhood dental development, and his disciplined mind was ready and eager for the job. He augmented the Stuart sample with a smaller one gathered by Dr. Richard H. Stucklen in Delaware. Throughout the 1950s, Dr. Moorrees and his collaborators at the Forsyth Dental Infirmary carefully recorded thousands of measure-

ments of the teeth, arch conditions and occlusion. Dr. Moorrees shaped this mass of data into the first clear picture of the orchestrated way the human deciduous dentition transitions into the permanent dentition. It was published in 1959, again by Harvard, as his now-classic volume, "The dentition of the growing child, a longitudinal study of dental development between 3 and 18 years of age."

His other pivotal studies resulted in more than 100 original articles, book chapters and reviews. Many have had profound influence on the course of craniofacial biology and orthodontic practice. In 1953, while work was proceeding with his books, the well-known Moorrees mesh-diagram analysis for the sagittal cephalogram was introduced, based on a study of 50 Forsyth dental hygiene students. A few years later, he and Martin R. Kean validated "natural head position" as the key extracranial method to establish true-vertical head orientation for cephalometric analyses. Using earlier Forsyth studies of dental radiographs, Dr. Moorrees pioneered in establishing norms of the development of the permanent teeth with reference both to age and to tooth emergence. The Moorrees tooth-formation data from the early 1960s have been the standards used by hundreds of subsequent investigators studying dental development and maturation. Results from these fundamental studies by Moorrees were combined with his other data to yield important papers about orthodontic diagnosis and treatment timing. Throughout his academic career, Dr. Moorrees maintained an incredibly broad range of research interests, as typified in the mid-1960s by his guidance of electromyographic studies of lip pressure in relation to incisor position, establishing the frequency of deglutition in man. A longitudinal study of several hundred twins and their age-matched siblings, begun in 1959 and continuing into the 1970s, was perhaps the most ambitious and broad-based Moorrees undertaking. Published results from this massive research effort were limited by funding inadequacies. Later in life, Dr. Moorrees wrote essays often and wisely on the past, present and future of orthodontics and education.

Coenraad Moorrees was the recipient of numerous recognitions for his basic contributions to our understanding of the growth and nature of the human dentition and face. His alma mater, the University of Utrecht, conferred on him the degree of Dr. med., *honoris causa*, in 1971 to acknowledge with pride his remarkable accomplishments. In 1977, he received the Albert H. Ketcham Memorial Award from the American Association of Orthodontists for his "outstanding contributions in the advancement of the science and art of orthodontics." In recognition of his scientific stature, he was awarded the Medaille de la Ville de Paris from the then mayor, Jacques Chirac, in 1982. Coenraad Moorrees won the 1st Distinguished Scientist Award given in 1987 by the Craniofacial Biology Group of the International Association for Dental Research. The Eastern Component of the Edward H. Angle Society of Orthodon-

tists, which Coenraad served as President in 1987–8, presented him with its Harvey Peck Memorial Award in 1993, for high achievement in the pursuit of excellence. His most treasured tribute came in 1985 when Queen Beatrix of the Netherlands decorated him Commander in the Order of Orange-Nassau, the highest civilian honor in the country. During the elaborate investiture ceremony, Dr. Moorrees was cited for the great honor he had brought to his native land through his accomplishments in life and work.

Coenraad Frans August Moorrees was born in The Hague, The Netherlands on October 23, 1916. He was the second of two sons, the eleventh generation of a Dutch family of patricians that traces its pedigree to the 16th century and whose family crest is inscribed “Absque labore nihil”—Without work, nothing. His father was a career military officer and his mother was at home with their children. In his youth, Coenraad Moorrees showed ability as a capable magician, a lifelong avocation he passed on to his son; no trip to New York City was complete without his visit to the magicians’ specialty store. Another hobby with roots in Holland was his love and knowledge of flowers.

The war experiences of Coenraad Moorrees reveal aspects of his extraordinary determination and ability to focus, qualities of character that helped lead him to great achievement in his academic years that followed. A few months after Pearl Harbor and the U.S. Declaration of War, the Moorreeses were uprooted from Rochester, New York, where he was studying, on orders from the Dutch government in exile to report to England to serve in the escalating war effort against Germany. In early 1942 with the North Atlantic already treacherous to maritime traffic, they left for the Dutch East Indies, aboard a ship through the Panama Canal, skirting South America and negotiating the South Pacific to Australia and then to Java. His brother was stationed in Jakarta as a military physician, and both Dr. and Mrs. Moorrees had spent years in their childhood there. Coenraad Moorrees enlisted in the Netherlands East Indies Army shortly before Java became occupied by Japanese troops. By the end of 1942, their difficult lives turned into a nightmare: They were separated and sent off to internment camps. As a prisoner of war, Dr. Moorrees was put to work as a dentist in his camp, living primitively, poorly fed, and relying on his ingenuity for survival. He saved a few lives there, administering medicine and making ban-

dages from bicycle tires, although at one point he was close to death with bacillary dysentery. His only treatment, as he later recalled, was “tea, tea and tea. I survived!” The Japanese surrender in 1945 was a momentous event for the Moorreeses. They were soon reunited and returned to the post-war Netherlands on a Dutch troop ship.

It is likely that the survival tests of his 20’s steeled him in his later roles at Forsyth and Harvard as Department Chief and Professor. He appeared as a sometimes fierce taskmaster to his postdoctoral fellows in orthodontics, a clinical specialty that indeed demands much task mastery. Although he did not himself treat patients during most of his academic career, he had a keen interest in the latest clinical methods and principles in orthodontics. This serious interest, coupled with his razor-sharp discipline as a first-rate scientist, became a powerful teaching tool, capable of overwhelming and intimidating even the brightest students or colleagues. Years later, many of his students, as professors themselves, realized that their mentor’s goal was not simply their embarrassment, but to drive home the importance of critical, scientific thinking in clinical problem-solving. The Moorrees methods in differential diagnosis and treatment planning thrive today as vital underpinnings of the training program in orthodontics at Harvard and other universities around the world, and in the minds of a legion of able orthodontists.

Professor Coenraad Moorrees truly enjoyed the intellectual challenge of orthodontically related science. It was his life, work and hobby. Whenever he was told of an appealing new project or experiment, his eyes lit up, his quick smile appeared and he would invariably offer a comment like “It will be fun,” a playful admission of his considerable prowess and comfort at work as a leading scientist in his specialty. Orthodontics and anthropology will miss this meticulous investigator, perceptive observer and tireless teacher. Orthodontists, anthropologists and those in allied fields are grateful for his corpus of seminal publications. His students, colleagues, friends and admirers will long cherish the memory of Coenraad F. A. Moorrees as a model and inspiration for their own betterment and their devotion to knowledge.

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