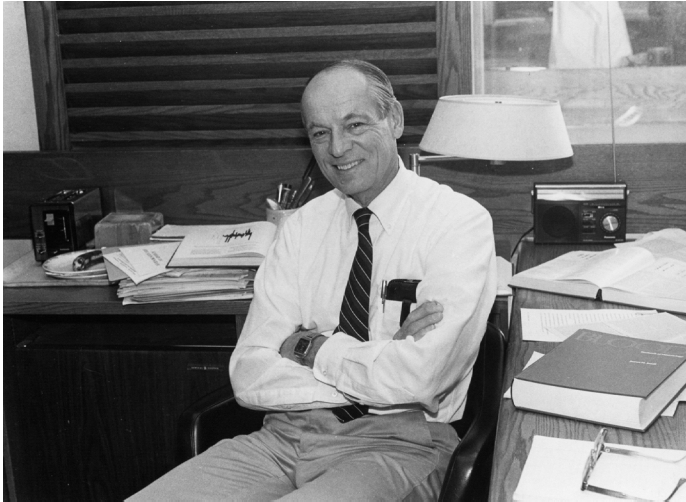




# James Harriman Jandl



Dr. James H. Jandl died on July 17, 2006 after a prolonged illness. He spent his entire career at Harvard Medical School where he became one of the world's premier experimental hematologists. He was also a highly effective teacher and a renowned author of hematology textbooks.

Dr. Jandl was born in Racine, Wisconsin in 1925. He enjoyed a happy and remarkably active childhood. With the encouragement of devoted parents, he developed a wide range of interests: academic, athletic, and artistic. Jandl was valedictorian of his high school class and editor-in-chief of his school newspaper, an early

indication of his passion for writing. He was president not only of his high school class but also presided at the annual state convention of student counselors. He played varsity football and basketball, and was an avid and highly skilled skier. In his teenage years he developed a serious interest in music and became sufficiently adept at the clarinet to play both in the high school band as well as in pickup dance bands and jazz groups. His passion for music was maintained throughout his long life. In addition, Jandl was a keen outdoorsman who, from his youth on, had an enormous affinity for nature, especially ornithology, which became a lifelong avocation.

Jandl came of age during World War II and joined the Navy immediately following high school graduation. He was posted to a naval installation at Franklin and Marshall College where he completed his bachelor's degree and received a B.S. in Chemistry after only two years of study. During that time, his Naval SAT scores were the highest in the U.S. His participation in college athletics included a basketball game with an Army team that consisted of the Harlem Globe Trotters!

Jandl's academic performance at Franklin and Marshall was so outstanding that he became the first student in many years from that college to attend Harvard Medical School. He received his M.D. degree from HMS in 1949, Cum Laude and a member of Alpha Omega Alpha. During his two years as intern and assistant resident on the II and IV (Harvard) Medical Services at Boston City Hospital he came under the aegis of Dr. William Castle, the George Minot Professor of Medicine. Castle served as his mentor for the next two decades, playing a critical role in developing and fostering Jandl's interest in experimental hematology. After two years completing his tour of duty in the U.S. Navy, Jandl returned to the Thorndike Laboratory at Boston City Hospital, first as a research fellow in 1952, then Instructor in 1955, and was appointed Assistant Professor in 1959.

*In tribute to their dedicated efforts to science and medicine, deceased members of the Harvard Faculty of Medicine (those at the rank of full or emeritus professor) receive a review of their life and contributions with a complete reflection, a **Memorial Minute**.*

Jandl's research productivity was extraordinary. He took full advantage of the wealth of pathology at the Boston City Hospital and focused with laser-like intensity on inherited and acquired disorders of the red blood cell. He began studying patients with alcoholic cirrhosis and published definitive studies on red cell production and survival in chronic liver disease as well as the impact of cirrhosis on folic acid metabolism. Thirteen years later, he and Richard Cooper showed that in liver disease, the red cell membrane acquires excess phospholipids and cholesterol, leading to the formation of target-like and spiculated red cells

Jandl soon turned his attention to hemolytic anemias. In a remarkably thorough and inventive series of studies published primarily in the *Journal of Clinical Investigation*, Jandl explored the mechanism by which antibody-coated red cells are destroyed in the liver and spleen. He exploited the use of radio-labeled erythrocytes to monitor cell survival and to identify sites of organ sequestration. Subsequently, he and his colleagues demonstrated that antibody-coated red cells attach to macrophages via the immunoglobulin FC receptor, forming flower-like rosettes. The macrophage nibbles at the membrane of adherent red cells, transforming normal biconcave discs into spherocytes. This vivid morphologic observation provided an elegant explanation for the enhanced rigidity of antibody-coated red cells which contributes importantly to their destruction. In addition, Jandl and his colleagues published definitive studies delineating the fate of free hemoglobin in the plasma, identifying organs of uptake and the process by which the kidney handles hemoglobin.

Jandl made equally important contributions in other types of hemolytic anemia. He and Harry Jacob showed increased cation leak and consequent high glucose consumption in red cells of patients with hereditary spherocytosis, providing a logical explanation for their demise in the unfriendly nutrient-depleted cords of the spleen. Jandl and Jacob also broadened our understanding of the nature of drug-induced oxidant hemolysis in individuals with glucose-6-phosphate dehydrogenase deficiency. Their experiments provided new insights into how oxidant stress can lead to denaturation of hemoglobin within the red cell resulting in development of rigid inclusion-laden red cells. Jandl's studies of red cell metabolism produced a coherent understanding of mechanism by which deficiency in specific red cell enzymes including pyruvate kinase leads to a shortening of red cell lifespan.

Jandl's remarkably insightful and comprehensive studies of the hemolytic anemias were accompanied, and perhaps trumped, by an equally thorough and groundbreaking investigation of the utilization of iron by erythroid cells. He and Jay Katz provided the first and comprehensive understanding of the entry of iron into erythroid through iron transferrin and its binding to specific receptors. They developed the concept of the "iron transferin cycle", a process by which this iron-binding protein in the plasma efficiently transports a large amount of iron to the erythropoietic cells in the bone marrow sufficient to accommodate high level hemoglobin production. These studies were among the very first to recognize the critical importance of receptors for specific biological transport functions.

Although the great bulk of his research effort was devoted to studies of the red blood cell, Jandl collaborated with Richard Aster in comprehensive studies that provided new and fundamental insights into the nature of platelet production, lifespan and sequestration in the spleen.

This brief summary of Jandl's research accomplishments does not do justice to his stature and leadership in clinical investigation. His conduct of science set a standard that informed and inspired a generation of trainees who had the good fortune of working with him. His intellect was as deep as it was broad. He had uncanny insights into underlying biological mechanisms and, by a combination of reasoning

and instinct, could design the experiment most apt to produce a conclusive result. His trainees learned that scientific truth is a very stern mistress, and that any presumption of discovery must pass the muster of rigorous self-criticism. Jandl conveyed a reverence for the English language, not only in his scholarly writing but also in his lectures and even in informal discussion. His remarkable effectiveness as a mentor came from a synergistic blend of these highly disciplined attributes with great personal magnetism: a delightfully wry sense of humor, a high level of energy and genuine concern for the welfare of his fellows, residents and students.

In 1968 Jandl succeeded Dr. Maxwell Finland as George Richard Minot Professor and Director of the Thorndike Laboratory and Harvard Medical Unit at Boston City Hospital. Although this recognition was largely based on outstanding scientific achievements, he had become increasingly involved in teaching and administration. He earned plaudits from second year medical students for his dynamic leadership of their course in hematology pathophysiology. Third and fourth year students and residents were equally appreciative of his bedside teaching on the wards at Boston City Hospital. Jandl directed the Hematology Division at the Thorndike very effectively, maintaining high levels of productivity and *esprit de corps*. However, when he assumed leadership of the entire department, he encountered formidable financial and political problems that led to his stepping down after only a three-year tenure. He was succeeded by Dr. Franklin Epstein.

Jandl devoted the remainder of his career writing three outstanding and widely read text books devoted to blood disorders. His Blood: Atlas and Sourcebook of Hematology, done in collaboration with his long-time associate Carola Kapff, remains the most thorough and instructive compilation of peripheral blood and bone marrow morphology. His concise single-author text Blood: Pathophysiology has given a generation of medical students an understanding of the mechanisms underlying hematologic disorders. His Blood: Textbook of Hematology is a large (1200 pages) comprehensive and scholarly compendium of the entire field, appearing in two editions, 1987 and 1996. For a single author to write authoritatively on such a broad, complex and rapidly growing discipline is an exceptional tour-de-force. The writing within this tome is unfailingly precise as well as adroit, colorful, and at times witty. Understandably, this book won two national awards.

Until his final illness, Jandl greatly enjoyed his retirement, having time to return to some of his boyhood passions. He and his wife Nancy took great pleasure and satisfaction in creatively renovating their lovely home in Concord and cultivating their large lawn and gardens. Jandl greatly enjoyed watercolor painting of outdoor landscapes. He returned to Dixieland/Big Band jazz, playing the clarinet and saxophone each summer in camps for devoted amateurs. He remained in close contact with his five children and 16 grandchildren.

Respectfully submitted,

Howard F. Bunn, *Chair*  
Ronald A. Arky  
Franklin H. Epstein  
David G. Nathan