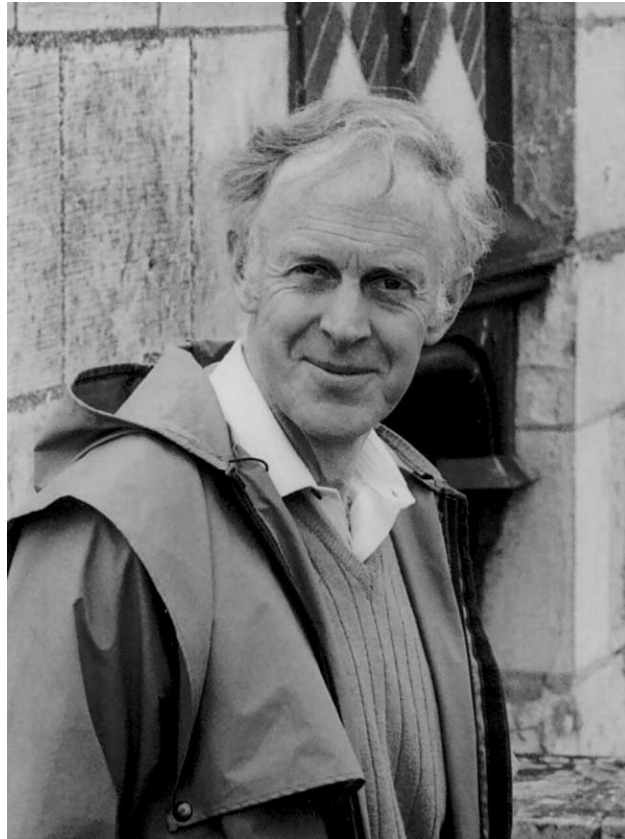


## OBITUARY

### David M. Danks, M.D., A.O. (June 4, 1931–July 8, 2003): Founder, Murdoch Childrens Research Institute

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David Miles Danks (June 4, 1931–July 8, 2003)

David Danks passed into another world in the middle of the Australian winter; at the same time, the International Congress of Genetics was being held in his beautiful home city of Melbourne. A brief tribute was paid to him in a Congress plenary session; his funeral was, at his family's request, a private ceremony; and a commemorative service was held, but—again at the request of his family—it was brief, albeit warmly attended by many whose lives David had touched. And so, the events marking David's passing occurred with a kind of eerie quietness that might have seemed to ill befit a man

of such towering stature in medicine, science, education, and the wider community. No greater fanfare was necessary, however—David's contributions to all of these fields speak volumes in their own right and will continue to reverberate for many years to come.

I first saw David in action when I attended his human genetics lectures at the University of Melbourne in the early 1970s. My first impression was of an imposing but warm person. For me, what set David apart from other lecturers was the wealth of genetic information and stories that seemed so effortlessly to flow from him. He never seemed to need to prepare his lectures, nor did he believe in giving out lecture notes. He expected his students to be attentive or to risk being lost during exam

time, since much of what he said would have been difficult to find in textbooks. As I learned later, when I got to know David, his was truly an extraordinary mind, and he possessed a memory to which information stuck like superglue. He was an enthusiastic and inspiring teacher, generous in giving encouragement and support, and—perhaps more importantly to the young students—good exam grades to those who made the effort. I had fallen in love with genetics in my high school years when an aunt gave me a university text on the subject, but it was David who elevated my interest to the point of pursuing human genetics as a career.

David obtained a degree in medicine from the University of Melbourne in 1954 and was, for a period of ~8 years, a professor of pediatrics at the Royal Children's Hospital in Melbourne. However, it soon became clear that his passion lay in clinical genetics. This was in the early 1960s, well before the discipline turned the corner to achieve the “mainstream” status it presently enjoys. David recognized its importance then and ensured that he received training in both the United Kingdom and United States from the very best in the clinical genetics world, including Victor McKusick. On returning to Melbourne, he set up the Genetics Research Unit at the Royal Children's Hospital in 1967 and started a busy career combining patient care, teaching, and research.

Working with a small budget and research team, he soon made the critical connection between the kinky/steely hair in patients with Menkes syndrome and that of lambs that grazed on grass grown in copper-depleted soil. David's hunch that copper deficiency might be the underlying cause of Menkes disease was confirmed when he demonstrated that the patients had abnormally low levels of copper in their blood serum; at the same time, he measured unusually high levels of copper in the patients' gut biopsies and obtained the first vital clue that improper accumulation of copper in certain tissues might be responsible for copper deficiency in other parts of the body. In a series of landmark papers published between 1972 and 1973 in *Lancet*, *Pediatrics*, and *Science*, David announced that Menkes syndrome was a disease of copper transport (Danks et al. 1972a, 1972b, 1973a, 1973b). He maintained his research interest in this disease and finally saw a collaborative effort between his team and another, in Ann Arbor, MI, succeed in identifying and cloning the Menkes gene (Mercer et al. 1993), just 2 years before his retirement. In all, David published >400 papers. These papers reflected his wide-ranging research interests, which included Wilson disease (another disorder of copper metabolism), phenylketonuria and its variants, Marfan syndrome, fish-odor trimethylaminuria, Leigh disease, polycystic kidney disease, and many others.

Looking through the eyes of a clinician, David became

increasingly frustrated with the manner in which syndromic diagnoses were made. Conventional practice at the time had it that an experienced clinician must be able to recognize instantly the unique arrays of abnormal features that constituted a syndrome. Otherwise, the clinician would be left unable to make a sensible diagnosis, with very few resources to aid in decision making. To David, that situation was completely unsatisfactory, since it was impossible for any one clinician to know or remember all the features of the thousands of syndromes. The textbooks, static by nature, were of little help, since they suffered from serious limitations on depth, accessibility, and the updating of fast-emerging information. David was never an avid user of computers himself, but in 1972 he laid down the principles of a computerized system that combined very extensive pictorial and verbal presentation of all the characteristic features of malformation syndromes—and so was born the POSSUM (Pictures of Standard Syndromes and Unknown Malformations) system. Development of the system took >10 years, and it was released for commercial distribution in 1984. During the next 6 or 7 years, a companion system devoted specifically to bone dysplasias, known as “OSSUM,” was also developed and launched by David's team. Today, POSSUM and OSSUM contain many tens of thousands of illustrations for several thousand different syndromes and are used by countless hospitals throughout the world.

Perhaps David's biggest challenge was his dream of building an institute combining the best of clinical genetic service and world-class genetic research. However, even with David's many talents—a great intellect, business skills rare in an academic (David came from a successful business family), strong training and good connections in the medical and genetics world, an inexhaustible amount of energy and discipline, and a big, warm heart—the path to success proved far more hazardous and strenuous than might have been expected. He set out at a time when government policy, hospital politics, and low community awareness of genetics combined to create a climate that was at best lukewarm in terms of both moral and financial support and at worst downright thorny and hostile. Very few would remember the struggles and heartache that David endured as a result of setting foot on this path—the times when things must have felt more like a nightmare than a happy dream. Without any doubt, there were many occasions when a lesser person would have thrown in the towel.

Of course, David did receive support from many people. One such person was Dame Elisabeth Murdoch—an untiring philanthropist and longtime patron and friend of the Murdoch Institute, even to this day at the age of 94. Without her unwavering encouragement and support, David's history book might well have been

written quite differently. And, of course, support also came from others in the business world (some of whom would later form the Institute's board), as well as from fellow physicians and scientists. But in the end, it was David who held his dream together. David created the Genetics Research Unit, a small research outfit that evolved into the Birth Defects Research Institute and then, in 1986, formally became the Murdoch Institute, which David led as founding director until his retirement in 1995 (fig. 1). Under David's leadership, the Institute became the premier center for clinical genetics training in Australia and the Asia Pacific region, and it produced many brilliant clinical geneticists who now hold key positions throughout Australia and in other parts of the world. At the time of David's retirement, the Institute had grown to employ >200 staff members and stood proudly then, as it remains now, as one of the foremost centers undertaking and fostering world-class research into genetics. The Institute (recently renamed the Murdoch Childrens Research Institute) has continued to expand, both in size (it now has a staff of >600) and breadth (including child and adolescent health). Today, we bear full witness to, and continue to benefit from, the fruit of David's vision and his labor of love. But even more than this, for many, it would be David's courage to take on that challenging journey and his ambition to fulfill his bold dream that most inspired.

David always kept himself unreservedly busy. Even

after a full day at work, while driving home late in the evening, he would often make use of his time in the car, dictating messages into his Dictaphone for his assistant to type up in the morning—although that probably wasn't an entirely wise thing for him to have done, considering that his Dictaphone wasn't even hands-free! David never wasted a moment of his or anyone else's time in delivering results. As a Ph.D. student, I used to pass on drafts of manuscripts and other write-ups for him to comment on. Although I didn't, at the time, appreciate the intensity and discipline that were needed, David would, despite all his many other responsibilities, typically return such "homework" to me within one or two days, often simply overnight, with his detailed, penciled-in comments (I don't think he liked writing over others' work in red). The comments were direct—the first comment I ever received from David was a single word written across the top of the front page of a manuscript I'd given to him: "Rambling." He would then take me through his penciled points, explaining how to make things "less rambling." Such was David's style—he was direct, and he cared.

Despite his busy schedule, David always found time for others; anyone in the Institute who needed his attention or mentoring, or simply wanted a chat, could be sure of a warm welcome, and he would often even find a few moments to stop on his way home to ask about the well-being of the night office cleaners. David always



**Figure 1** David at the launching of the Murdoch Institute (February 17, 1987)

gave his time, intellectual input, and moral support to the speakers at the Institute's regular Friday morning and lunchtime clinical genetics and research seminars, as well as the monthly Thursday lunchtime external speakers' seminars. He would religiously schedule his activities on these days to ensure that he would not miss these seminars and—oh! I should mention his favorite seat, right in the middle of the front row, and, for lunch, his regular sandwich, followed by an apple, in between sips of bottled orange juice he had bought from the canteen. He rarely missed a single one of these commitments and habits right to the day he retired.

David's commitment and time were also generously given to many outside the Institute. At his alma mater, the Camberwell Grammar School (for which he had been both dux and school captain), which all of his four sons also attended, David was a member of the school council for 21 years and served as the council's chairman for the last 5 years. David generously gave the school his service, time, and financial support and helped to raise funds for many major projects at the school, including its auditorium, at which David's commemorative service was held. On retiring from the Murdoch Institute, David became chairman of the publicly listed company John Danks & Son and, as a trustee of the Danks Trust, continued to serve the community through significant contributions to numerous charities. David's commitment and generosity to the community were unquestionable.

David must have been proud of many things, but one source of pride that stood head and shoulders above all else was his family. David was not always very expressive of his personal affections, but there was no mistaking the pride and joy he felt in his family; an incredible radiance shone from his face whenever he spoke of them, as he frequently did.

In some ways, because of this passion, David saw his Institute like a family. For many years, during Christmastime, we would arrive at work one morning to find a nicely gift-wrapped present from David and his wife, June, on each person's desk. I have lost count of the number of functions David and June hosted at their lovely house, to which they invited staff in small or large groups. Indeed, when the Institute was smaller, often the whole Institute staff was invited. Many gatherings—and even one or two sleepovers—were held at their beach house, situated in a beautiful spot along the breathtaking Victorian coastline. Many of these functions were family affairs, where partners, spouses, and ankle-biters (and their larger versions) were also warmly welcomed. The hospitality was always heartfelt, and, for as long as I can remember, there were always some of David's children present to greet us, chat with us, and make us feel at home. It was indeed a treat to have been, even only temporarily, welcomed into such a fine family and given

the chance to know each of its wonderful members. Sadly, David has now departed, but he leaves behind his remarkable and supportive wife, June, in her own right a brilliant clinician who unselfishly curtailed her own career in order to provide the best for the family and for their five wonderful children—Andrew, Philip, Jenny, Peter, and Alister. “Pa's cuddles” will also be greatly missed by his 12 grandchildren.

It would be impossible to do justice to David's life in these few pages. I have known and worked closely with David for the best part of nearly 30 years, during which time we shared many fine moments. Although he was first and foremost a mentor and a boss, the passage of time also saw us become trusted colleagues and friends, and although we did not always agree, we respected each other enough to overlook the minor differences and to point out and attend to the bigger ones. Through it all, we supported each other, and for that privilege I am truly grateful.

Some of my most enduring images of David stem from his last days at the Institute. David would spend many hours quietly sieving through, reassigning, and, more often than not, throwing out, the tons of papers that he had accumulated. He would jokingly tell me that the exercise was “therapeutic,” although powerful emotions must have been revived as he recalled the events of the past 50 years. There were also moments when David and I would pore over old memories together, such as when he amazingly turned up with some correspondence that had passed between us while I was in Oxford and San Francisco between 1980 and 1983 doing my post-doctoral fellowships. With those letters in his hand, he remarked that he really ought to throw them away right then. That he did, along with many other things that he must have been both proud of and sad to leave behind as he moved on to the next phase of his life.

By any measure, David's journey through life was immensely eventful and fulfilling. Indeed, it is quite incredible that one man could have achieved so much in so many areas. Such achievements, however, did not come without challenges. His health struggles—a hole in the heart and Parkinson disease—were ones that were to last, in the most testing sense of the word, to the last of his days, but he confronted these struggles with strength and courage.

David was a remarkable doctor, scientist, teacher, mentor, family man, friend, and champion of good causes. His immense vision, talent, energy, tenacity, unflinching appetite for excellence, and warm and caring nature remain a shining inspiration to us all. To him, we owe heartfelt thanks for his contributions to making the world a better place.

Rest well, David.

## Acknowledgments

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For the most part, I have avoided including the names of the many people who shared and played important parts in David's eventful journey, since any attempt to provide an exhaustive list would be doomed to failure and could only cause offense. But, if I may, I would like, on behalf of David and all those close to him, to express the sincerest of thanks to each and every one of these people for all that they have done.

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