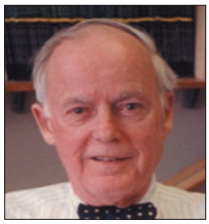

Barton Childs 1916–2010

Barbara R Migeon

Barton Childs, who defined the field of genetic medicine and provided the best rationale for its existence, died on February 18, 2010, just short of his 94th birthday. Until then, he continued to promote the application of genetics to the practice of medicine to all who might listen.

A graduate of Williams College, Barton received his medical degree from Johns Hopkins School of Medicine, which also provided his training in pediatrics. The recipient of many honors, he was highly respected as a visionary geneticist.

Barton developed an interest in genetics while observing pediatric outpatients with congenital anomalies. His reading suggested two ways to study the causes of such anomalies: either study the offspring of rats treated with toxic compounds during pregnancy or study the inheritance of anomalies in families, which seemed to him a far superior approach. To learn genetics, he traveled to London, spending a pivotal year at the Galton Laboratory. There, he came under the influence of Lionel Penrose, a psychiatrist who had established what Barton considered the first full laboratory for human genetics in the world. He also fell in with Harry Harris, a physician and geneticist who pioneered the Garrodian concept that genetic variation is common in man and who showed that no two individuals are exactly alike in their biochemical makeup.

Returning to Johns Hopkins in 1953, Barton founded the division of pediatric genetics. His mission differed from that of his Hopkins colleague, Victor McKusick, who started a medical genetics clinic in 1957. Barton believed that genetics should be an important component of patient care in all branches of medicine, so he feared that its role would be diminished if it was made an independent discipline. Rather than collecting patients in a genetics clinic, he wanted to teach physicians how to study their own patients with genetic diseases. David Valle, who introduced Barton at the ceremony for the Colonel Harland Sanders award for lifetime achievement at the American College of Medical Genetics annual conference in 1999, said, "Barton's greatest contribution was grabbing so many of us by the ear and forcing us to think about genetics and the role our genes play in health and disease."

Considering himself a klutz in the laboratory, Barton spent much of his time reviewing the literature and using published data to generate novel hypotheses. With collaborators, he contributed to biochemical studies of hyperglycinemia, G6PD deficiency and other genetic diseases. With Ronald Davidson and Harold Nitowsky, he conducted his most elegant experiment: analyzing single cell clones derived from individuals heterozygous for G6PD variants, which provided the first compelling evidence supporting the hypothesis of a single active X chromosome proposed by Mary Lyon. Also, Barton carried out pioneering studies of dyslexia and schizophrenia, introducing genetic methodology to the field.

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Perhaps more remarkable than his experimental studies were his review papers. Many were visionary and introduced his concept of disease as disturbed homeostasis due to interacting genetic and societal factors. These ideas were expanded in his 1999 book, *Genetic Medicine: A Logic of Disease*. His papers introduced such novel ideas as genetic heterogeneity and the role of genes in infectious disease and human behavior. His belief that medicine should broadly incorporate his concept of disease inspired his desire to revolutionize medical education. He lived long enough to witness the initiation of his genetics-based curriculum, 'Genes to Society', at the Johns Hopkins School of Medicine.

I met Barton during my pediatric internship at Hopkins. He was an assistant professor, Markle Scholar and the head and only member of the division of pediatric genetics. I observed that he was a superb clinician and an excellent clinical resource. I became his first postdoctoral fellow, and he remained my lifetime mentor and friend. Barton officially mentored a small number of fellows, who include Haig Kazazian, Ronald Davidson, Vasken der Kaloustian and Ann Pulver. Yet he had many unofficial trainees: David Valle, Michael Kaback, Neil Holtzman, Saul Brusilow, Jerry Winkelstein, Ted Bayless, Patrick Walsh and many others consider him an important mentor. Their studies of OTC deficiency, prostate cancer, immunodeficiency and Crohn's disease, the first Tay Sachs screen, and the concept of informed parental consent all bear his imprint.

All who came under his influence benefited from his creativity. His greatest impact was an intimate one. It was not necessary to know Barton personally (although this was a great pleasure) but only to attend a conference or ride in an elevator with him. His humility, humanity, great intellect and unusual perspective became apparent almost immediately. His performance at journal clubs and research conferences set standards for all of us. He had a unique view of almost everything. The questions he raised during discussions brought important insights that never would be considered otherwise. He reminded us of gaps in our knowledge and suggested the critical experiments to be done. A historian by nature, there was nothing anecdotal about his approach to anything.

Barton had the misfortune to lose his wife Eloise in a car accident in 1980 and then the good fortune to marry Dr. Ann Pulver, who provided a new raison d'être.

It seems fitting to conclude with Barton's own prophetic words from his paper 'Science as a way of knowing: human genetics' published in *American Zoologist* in 1986: "genetics helps us to know ourselves, both as a species and as individuals, and how we came to be what we are. It also shows us that some disease is an inevitable by-product of the mechanisms for supplying the variability essential for a successful species. Curiously, it has not had much impact on medical thinking, but it is likely that the methods of the new genetics will remedy that deficiency by establishing the idea of genetic variation as essential to the study of human biology and medicine." ■

Corrected after print 4 February 2011

Erratum: Barton Childs 1916–2010

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In the version of this article initially published, the date of death reported was incorrect. The correct date is 18 February 2010. Also, a quote was incorrectly attributed to Kurt Hirschhorn rather than David Valle, who introduced Barton at the 1999 meeting of the American College of Medical Genetics and not the American Society of Human Genetics. These errors have been corrected in the HTML and PDF versions of the article.