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# John Hilton Edwards

## 1928–2007

Victor A McKusick

John Edwards, formerly Professor of Genetics at Oxford University, died on October 11 of metastatic cancer of the prostate. Over the last 50 years, he was an important contributor to human genetics in a variety of areas, particularly linkage mapping, allelic association with disease predisposition and comparative gene mapping.

The son of a London surgeon, Edwards was educated in medicine at Cambridge University, with clinical qualification at Middlesex Hospital Medical School in London. John's physician wife, Felicity, was a medical school classmate, having come to Middlesex from Oxford at the same time that John came there from Cambridge. Pediatrics was John's specialty within clinical medicine.

On his return from a stint as ship's surgeon on the Antarctic survey vessel *John Biscoe* (1952–1953), John was found to have a tuberculous lesion at the apex of one lung. He used the enforced bed rest of several months to teach himself statistical methodology. In 1956, after hospital training, Edwards assumed appointments in Thomas McKeown's Department of Social Medicine and The Institute of Child Health at Birmingham University. His associations with Birmingham continued until 1979, with interludes at Oxford (in Alan Stevenson's Medical Research Council (MRC) Unit on Population Genetics, 1958–1960), at Children's Hospital of Philadelphia (1960–1961) as geneticist, and at the New York Blood Center and Cornell Medical College (1967–1968). During his time in Birmingham he rose through the ranks, from lecturer to Professor of Human Genetics (1968) and on to head of a new department of clinical genetics (1969). In 1979, he succeeded Walter Bodmer as Professor of Genetics at Oxford. Earlier that year he had been elected Fellow of the Royal Society for "contributions to human cytogenetics and genetic epidemiology including elucidation of the threshold model for multifactorial traits and pedigree linkage analysis."

One of John's first publications was a letter (*Lancet* 1, 579; 1956) suggesting that antenatal detection of hereditary disorders could be achieved by application of the linkage principle to test material obtained by amniocentesis. Amniocentesis had just been introduced for detection of Rh hemolytic disease of the fetus.

During his time at Oxford, Edwards seized the opportunity to learn about chromosomes from Charles Ford and David Harnden at Harwell. In that period, he was spending a morning a month at the Children's Hospital in Birmingham. It was there that he recognized a potential chromosomal aberration in a newborn—he called it "trisomy, type unknown." He obtained postmortem tissues and delivered them to Harwell, where Harnden demonstrated trisomy 18, or Edwards syndrome, as it came to be known (*Lancet* 1, 787–790; 1960). He also made major contributions to the delineation of X-linked hydrocephalus, the most common inherited form of congenital hydrocephalus. In 1961, he published two back-to-back papers on the topic. One described a large pedigree with 15 affected members (*Arch. Dis. Child.* 6, 481–485; 1961), and the second was a general

discussion delineating the disorder (*Arch. Dis. Child.* 36, 86–93; 1961).

Edwards was very productive during his period in Birmingham, and his contributions were wide ranging. He contributed to the early technology of clinical chromosomology and reported on the epidemiology of birth defects, on 20 cases of Cornelia de Lange syndrome and on the meaning of blood group and disease associations.

Edwards was undoubtedly influenced by Lancelot Hogben, who was in the Department of Social Medicine in Edwards' first years in Birmingham. He admired Hogben and was amused by his idiosyncrasies. R.A. Fisher referred to John as Hogben's Edwards and to John's younger brother as Fisher's Edwards, according to the latter, the Cambridge statistical geneticist A.W.F. (Anthony) Edwards.

John was a regular and important participant in the international Human Gene Mapping Workshops held between 1973 and 1991. His input was in relation to linkage analysis and reporting and to comparative mapping, particularly of mouse and man. After he went to Oxford in 1979, he pursued comparative mapping in these two species in collaboration with colleagues at Harwell, including Mary Lyon, Tony Searle and others. This led to the design of his famous Oxford Grid, which gave a graphic representation of conservation of synteny between mouse and man.

Edwards' collaborations in comparative mapping and genetic pathology extended to scientists at The Jackson Laboratory in Bar Harbor, including Thomas Roderick. They also included the Faculty of Veterinary Science at the University of Sydney, specifically Frank Nicholas, who created and maintains OMIA, Online Mendelian Inheritance in Animals, the equivalent of OMIM for farm and companion animals. In Sydney, the extensive "Oxgrid Project" (<http://oxgrid.angis.org.au>), inspired and advised by Edwards, has Oxford grids comparing the human with many other species.

David Weatherall characterizes Edwards as "one of the nicest and cleverest of our field." John was of quick wit, in both senses of that word. His humor was rarely if ever malicious or unkind. Among his colleagues his absentmindedness was legendary; 'John Edwards stories' abound. These characteristics enhanced rather than detracted from the respect in which his colleagues held him.

I first met John in 1961 when he participated as a 'student' in the second annual session of "The Bar Harbor Course." Officially named the Short Course in Medical and Experimental Mammalian Genetics, it was first given in 1960 as a joint effort of The Jackson Laboratory and Johns Hopkins University. Since 1961, my contacts with John were numerous and always stimulating and instructive, through the gene mapping workshops, through those occasions when he lectured in the Bar Harbor Course and through visits by my wife Anne and me to Felicity and John in Birmingham and Oxford and their reciprocal visits to us in our Baltimore home or in our old farmhouse in Nova Scotia.

John maintained an exceptionally vigorous life until a year or so before he died. This vigorous activity included gliding and skiing and even taking down trees and chopping them up for firewood on recent visits to Tom Roderick in Bar Harbor.

John is survived by Felicity, his wife of 54 years, and by their four talented offspring. ■

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