A tribute to Robert Geoffrey Edwards (born 27 September 1925; died 10 April 2013)

It is a privilege to be able to speak about Professor Sir Robert Edwards, a Fellow ad Eundem of this College, whose scientific work has had such momentous consequences. IVF is estimated to have led to the birth of five million babies, and for our profession it has created a whole new subspecialty.

Bob was a Yorkshireman by background and had some of the characteristics of that region in his nature: hard-working, modest, with determination (or bloody-mindedness) that was certainly needed in the pathway he took. He was born in 1925 in the Yorkshire town of Batley. His father was a railwayman, and his mother was a machinist in a local mill. The family later relocated to Manchester and Bob obtained a scholarship to attend Manchester Central High School for Boys.

Bob had his education interrupted by the Second World War, conscription in 1943 and national service, mostly in Palestine. On demob in 1948, he went as a mature student to read agricultural science at the University College of North Wales in Bangor. Disillusioned with the course, he switched to zoology after two years, in which he obtained only a pass degree.

Fortunately, he was accepted at Edinburgh University for a diploma and then a PhD in genetics. His initial work was on the possibility that birth defects might arise through chromosomal segregation errors during egg maturation or fertilisation. He worked with Ruth Fowler, whom he married in 1954.

After spells working at the California Institute of Technology and the National Institute for Medical Research at Mill Hill, Bob spent a year in the biochemistry department in Glasgow. In 1963 he went to the physiology department in Cambridge, where he stayed. His work there on human egg maturation and its anomalies, and achieving human fertilisation in vitro, led to a publication in The Lancet in 1965 that set out his course of IVF studies for the next two decades.

His partnership with Patrick Steptoe from 1968 enabled him to pursue this, as Steptoe was a pioneer of laparoscopic surgery and had shown that it was possible to aspirate eggs under direct vision from the ovary. The third member of their team, between these two strong characters, was Jean Purdy, their nurse-technician. The three of them reported in Nature in 1970 the in vitro fertilisation and cleavage of human embryos. For almost 10 years Bob drove between Cambridge and Oldham, working in a basic laboratory adjacent to the operating theatre, before achieving the first ongoing pregnancy which resulted in the birth of Louise Brown on 25 July 1978.

The difficulties that Edwards and Steptoe faced as pioneers cannot be underestimated. They were given no financial support, they were turned down by the Medical Research Council and other UK funding bodies. They were vilified by religious leaders and attacked by the press. They were criticised and even ostracised by most of their scientific and clinical colleagues.

But their success was reported in The Lancet, and presented at this College in January 1979. IVF developed rapidly; births were achieved in the United States and Australia, in 1984 the first donor egg birth and first frozen-thawed embryo birth, the use of ultrasound to guide egg pick-up trans-abdominally then vaginally.

The world’s first IVF clinic—Bourn Hall—was established in 1980 by Edwards and Steptoe. In the late 1980s I was lucky enough to become a clinical research fellow at Hallam Medical Centre which was
linked to Bourn Hall, as was Professor Charles Kingsland. Indeed Bob helped to supervise his MD and acted as embryologist for his weekend egg collections. Interactions with Bob Edwards were stimulating and encouraging; he had the attribute of the truly great in treating everyone equally; he never talked down or patronised. Bourn was a Jacobean mansion in large grounds, a strange contrast to the high tech labs within. I remember attending the annual Bourn “baby parties” where Bob was in his element; by then they had over 1000 births and the gardens were filled with families with babies and toddlers. Bob had five daughters of his own and had an affinity with children.

Bob showed astonishing foresight in his research and his thinking. Back in 1968, he established the viability of pre-implantation genetic diagnosis in an animal model. This approach was not applied to human embryos until 1990, more than two decades later. In addition, during his time at Glasgow in the early 60s, he had isolated stem cells from early rabbit embryos. This far-sightedness pervaded his research.

Bob himself was well aware of the ethical implications of his work, and indeed he proposed that research on human germ cells and embryos should be done under strict ethical guidelines. He ensured that an ethics committee for IVF was created at Bourn Hall, and continued to publish widely about reproductive bioethics. He also wrote prolifically to promote the public awareness of science.

Bob was a founder of the European Society for Human Reproduction and Embryology. He trustingly asked me to give a plenary lecture as a junior research fellow. I have never worked so hard on preparation! Fortunately there were only a few hundred people attending those early meetings; at ESHRE in London this year we are expecting 8,000-10,000. Bob founded and edited the journal *Human Reproduction*. It had one of the strangest editorial addresses, where his office was in a converted stable and manuscripts arrived from around the world. For many years he personally read every paper submitted and encouraged young authors. In 2000 he set up a new electronic journal, *Reproductive BioMedicine Online*.

Over time, public attitudes changed and IVF became recognised as a safe and established treatment to alleviate the suffering of infertility, and tributes followed. Elected Fellow of the Royal Society in 1984 and made Professor of Human Reproduction in 1985, Bob was made Fellow ad Eundem of the RCOG in 1985 and for his outstanding achievements he received the Sir Eardley Holland Gold Medal from the College in 2005. He was knighted in 2011. Three decades after the birth of the first “test-tube baby” he was awarded the 2010 Nobel Prize in Physiology and Medicine. Sadly, by then he was too frail to attend the ceremony in person and was represented by his wife Ruth, who survives him. He died in April at the age of 87.

Bob was a great man and a true socialist, by which I mean that he worked for social good. He had a belief in humanity and a vision of scientific possibility that was away ahead of his peers. It took him on a long, uncomfortable journey that reached a victorious conclusion. Certainly the women and men he helped will not forget him. He is a symbolic father to all the children born of IVF. What a legacy to have contributed so much to human happiness.

Melanie Davies FRCOG

RCOG Council, 1st June 2013