

of Reading. Thaddeus Mann and Brian Setchell chaired a symposium on 'Secretions of the Male and Female Reproductive Tracts' where Bob and I presented back-to-back lectures: 'Follicular Fluid' and 'Oviductal and Uterine Fluids' respectively. This symposium successfully served as a template for a subsequent Gordon Research Conference under the identical heading.

The ideals of the Exeter meeting developed further and further, leading to the development of successful IVF in 1978 and finally to the basis of Bob's recent outstanding award, the Nobel Prize for Physiology or Medicine. Needless to say, we are also gratefully aware of the large recent chapter of scientific history, which began in 1984 with the foundation of ESHRE and demonstrated worldwide all the brilliant facets of Bob's abilities and power as scientist, research manager and editor.

### Bob Edwards – personal memories

Richard Bronson, M.D.

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I first met Bob in 1969. At the time, I was working in Anne McLaren's lab in Edinburgh, taking time from my clinical training in surgery as a junior resident. Funded by an NIH grant fostering academic careers in medicine, my research was centred on the need to obtain mammalian eggs. Anne had been performing uterine blastocyst transfers in mice and had obtained handwritten notes from Andrzej Tarkowski, in Warsaw, who had developed a technique to transfer one-cell fertilized eggs to the oviduct. My job was to learn this technique as a prelude to my research. To see babies born and suckling, when three weeks earlier, I had seen them as fertilized eggs!

Although decades ago, I remember the excitement and controversy stirred by the publication of Bob Edwards, Barry Bavister, and Patrick Steptoe in *Nature* that year, in which the first successful fertilization of a human egg *in vitro* was described. It was unclear, at the time, how many years would pass before the birth of the first child conceived by IVF. Our Unit was filled with discussion as to whether the evidence presented was sufficient to prove in-vitro fertilization had taken place. A similar claim by John Rock and Miriam Menkin in 1944 had never been substantiated in subsequent work. I recall a long discussion as to what would constitute proof of IVF, people looking at the published article of Edwards *et al.* with scepticism. There was also talk as to whether this work should proceed, without more detailed knowledge of fertilization in non-human species, and debates over the merits of what we now call translational research versus pure basic research, as if the former had a secondary status.

I decided to take a train from Edinburgh to Cambridge, to visit Bob and discuss his work and my own. We also talked about the value and limits of applied science. I was struck by his commitment to an idea and came away feeling this was something I wanted to participate in. My work continued in Anne's lab for the remainder of the year, studying the effects of removal of the zona pellucida on oviductal transport of fertilized eggs and embryos. I returned to New

York with plans to switch careers, training in obstetrics and gynecology rather than surgery, and was fortunate that Luigi Mastroianni offered me a position at the Hospital of the University of Pennsylvania. Years later, having established myself, Bob invited me to be on the editorial board of *Human Reproduction*. I doubt Bob remembers my first visit with him as a very junior clinical scientist. Nor does he realize his influence on me.

### Bob Edwards tribute

Bruce Cattanaach

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My contacts with Bob Edwards were limited during the highest spots of his career, although of course I could not help but hear of his achievements with human in-vitro fertilization. Instead I knew Bob at the start of his research when he was working with laboratory mice in Professor Waddington's Institute of Animal Genetics and I was a fresh PhD student working with Lotte Auerbach. My speciality-to-be was chemical mutagenesis in mice and it was immediately clear that Bob had many of the techniques that were needed. He had even conducted preliminary studies using triethylene melamine (TEM), the chemical I was to study, assaying sperm production, fertilization rates, and duration of infertility following treatment of males. The meticulous nature of his work and his systematic approach had an immediate impact upon me and I was proud to have a joint paper with him in 1958.

I was not his student but he spent many hours, often late into the night in the steamy heat of the barely-ventilated mouse facilities, teaching me techniques for inducing ovulation, and the demanding procedures for artificial insemination. In fact, so much of his work on mouse reproductive biology with collaborators such as Julio Sirlin, Alan Gates, and of course his wife-to-be, Ruth Fowler, provided the tools and understanding for so much of my own mouse mutagenesis studies, and indeed much of the radiation and chemical mutation work around the world that was to follow.

Bob's drive and dedication even in those early days were inspirational. His productivity was immense, but I think it was his bubbling enthusiasm for his research that influenced me the most.

Thank you, my friend.

### Friend and advisor

Joseph C Daniel

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Only two years my chronological senior, Bob Edwards has, nevertheless, long been the focus of my aspiration. No surprise to me his Nobel recognition, only the question lingers: why so long in coming? To me, with or without the prize he has always been a champion.

Robert Edwards is a scientist's scientist. Meticulous and accurate in his own research, he is intolerant of shoddy inquiry, and quick to say so. Where he saw potential he had a capacity for constructive criticism that he offered in the form of questions, always delivered with humour and sensitivity, that inevitably profited the