

## Professor Sir Bernard Crossland

20 October 1923 – 17 January 2011

Address by the Revd Alex Willerby at the Service of Thanksgiving  
in McCracken Memorial Church on Thursday 27 January 2011

We have come here today to mourn the loss and to celebrate the life of Sir Bernard Crossland. (And what a life to celebrate!) He did live it well. Born in London, raised in Whitstable, schooled in Canterbury – an apprentice in Derby, a student in Nottingham, a teacher at Luton and Bristol and Queen's, an Englishman who made Ulster his home. Sir Bernard rose through hard work and determination not only to be the first in his family to attend university; he rose to the top of his field and to great academic, national and international heights. His work in explosive welding has had an impact – if you'll excuse the pun – on industry and society, from preventing man-made disasters to fitting dental plates.

His accolades and honours are legion: Fellow of the Royal Society; Fellow of the Royal Academy of Engineering; Member of the Royal Irish Academy; President of the Institution of Mechanical Engineers; Freeman of the City of London; Recipient of the Kelvin Medal; the Watt Gold Medal; the Cunningham Medal; the RAE's Sustained Achievement Award; I am sure countless others and no fewer than 9 honorary degrees.

Yet most of us are here because he was a good friend and an enthralling teacher and an inspiring presence and an unforgettable man. He was an engineer, and in his autobiography, Sir Bernard is quick to remind us that 'an engineer is a mediator between the philosopher and the working mechanic.' Engineers know not only the theory, but the practical application. They must know not only the science behind the machine; they must understand the people who will operate it. Sir Bernard understood that students are not just the next wave of professionals processing the lectures, analysing the results of tests, waiting for their degree and their job and their part as a cog in works; students are human beings and very often engineers remain little boys (or little girls) who like to play with erector sets and watch things blow up.

That's why he was so good at teaching. He made it fun and he remembered – as any good engineer should – the integrity of the component parts: that fact that each person that came into the classroom, each element that was introduced, each factor of the experiment needed to be taken into account. Queen's University needed not only a state-of-the-art workshop with all the cutting-edge machinery; Queen's needed to let their students and their professors be people – free to get to know each other, free to have a life outside of the classroom, freed

from the endless spiral of committee work. If Queen's Department of Mechanical Engineering was to be world-class, it needed to take into account not just the physical elements, but the human elements as well.

Sir Bernard's mediation, then, between philosophy and mechanics kept him from being stuck in an ivory tower or tucked away in a workshop. He was a workaholic, by his own admission, but he loved getting away with the family on a grand tour of Europe, camping as cheaply as they could. Yes, the engineer in him went along, trying to perfect the process of packing so that no space in the car was left unused – but he still wanted to get away. Yes, he was eager to get back to Queen's and to the office and to the work – but he understood the importance of family life. He adored 'his girls' and he never doubted that it was the stability of his home that enabled him to do what needed to be done, to accomplish what he saw was so important in his work.

And it was that balance of home and work, of father and teacher, of friend and colleague, of philosopher and mechanic that made him so good at seeing what others didn't. The King's Cross Inquiry – to which Sir Bernard gave such invaluable expertise – is a marvel of deduction and problem-solving because it was a synthesis of expert science and common sense. The panel was able to determine the cause of the fire and the reason for its breath-taking ferocity by taking into account not only scientific data (the slope of the escalator, the condition of the wood, the fact that a blasts of air act differently depending on whether they originate from an eastbound or westbound train), but Sir Bernard and the others on the panel also considered human behaviour – the fact, for instance, that smokers with their lit bit of incendiary stand mostly on the right side of escalators, letting other pass them on the left. Small details, but all important in understanding how things work, why things go wrong, how we can improve the world and leave it better than we found it.

And that is the point, isn't it? The point of engineering (the point of life) is not to simply discover or to more fully understand; the point of engineering is to makes things better. You understand all the parts, you take into account all the elements so that you can improve upon the whole. How metals behave under different levels of stress; how education and industry relate; how departments perceive each other at a university; why most engineers have a

healthy interest in music and art, but few artists and musicians are willing to learn much about engineering; how the cultural differences and political divides of a community affect the accessibility for some to enter good schools and good careers and how that impacts the whole. Bernard didn't simply want to know for the sake of knowing or to debate for the sake of winning an argument; he wanted to improve the situation.

Of course, the big problem that vexed Bernard until the end was the issue of climate change. He really did see it as a threat to all of us, a doomsday drawing near. He simply couldn't ignore the math: the temperature changes, the exponential increase in population and human wants, the fact that engineering was being co-opted to create more and more, rather than helping us get by on less. He was pessimistic about this and he would be lecturing us all now if he could.

It is hard in the face of any death, let alone in the endnote that Sir Bernard sounded – this warning about what is coming to all of us – to hear the words from John's Gospel saying: 'Do not let your hearts be troubled. Do not let them be afraid.' Easier said than done. Our hearts *are* troubled today. We do mourn the loss of such a great man, and the fact there seem to be few men left like him – of such skill and such mirth, of such gentleness and such strength – just when we need them most. We are troubled that he himself was frightened of the future that awaits us. This engineer who was so good at solving problems, at making improvements, at designing a fix, grew more pessimistic about humanity's ability to take everything into account and to make the decisions that need to be made.

It may be in the end that our only hope is that God turns out to be an engineer. ...And a strong hope it is. We do know, after all, that Christ is the mediator between this world and the next, and believe that he is preparing a better place for us, preparing to take us to it. You could argue therefore from this passage and from the evidence on hand that we should give up on ourselves, and trust only in Him. And yet, what I know of Christianity and what I have seen in men like Bernard Crossland leaves me more encouraged than that.

Ours *is* a faith in a better world to come, and ours is a species that better not rely too heavily on ourselves –

but the Good News is that we have not been abandoned to this world. We are not left to our own devices. And God has not forgotten about the human element. You and I have been given the Spirit that drives us forward; you and I retain that child-like wonder to see how things work – and now – through Christ, we have a blueprint for a better design. We still like to play with erector sets and tinker away and figure out how to make things better, and if we were to listen to our Lord and accept the peace that he offers, if we allowed his will to drive our imaginations, then we would find the balance between the mind and the heart, between attaining our wants and meeting the world's needs. We would be freed to work and to play and to build the Kingdom that He alone designs.

Of all the things that Bernard Crossland built, perhaps the best was the motor bike he constructed out of spare parts 65 years ago. He was working at Rolls-Royce as an apprentice engineer; and he was dating a short-hand typist named Audrey Burke. One day Bernard invited Audrey to come ride with him on the bike he'd built. And they scooted around Derbyshire and had the time of their life. And why not? On that bike, I am sure Bernard wanted to talk about the way he had improved this feature or that function, but the big improvement was a new life together, a life not only of hard work and tough decisions but a life of fun and of laughter, of companionship and of family, a life ahead of them in which anything was possible.

It is still possible to improve this world with the elements we have at hand. It is still possible to be both a brilliant and ambitious professional and a fun guy to be around. It is still possible to find the right balance between home and work, between heart and mind. It is still possible to weld philosophy to mechanics, even if you have to use an explosive to do it. It is still possible to believe in a better world to come without giving up on this one. And it is still possible to celebrate the triumph of life even in the face of death.

We give thanks for the life of Sir Bernard Crossland and we are challenged to live as he did – ever more mindful of the different elements at work in this world, and ever more determined to leave it better than we found it.