

## **Honorary Degree acceptance, Loughborough 15 December 2023**

### **Michael Berry**

Dear Chancellor Lord Sebastian Coe, dear Vice-Chancellor Professor Nick Jennings, dear Dean Professor Claudia Eberlein, dear colleagues, dear Fellow Graduates,

My first encounter with Loughborough University was in 1977, through Dr (later Professor) Nick Phillips. He had been developing gigantic holograms, and his sensational exhibition 'Light Fantastic' at the Royal Academy had queues stretching round the block. I was also developing optics using lasers, very different but also leading to dramatic demonstrations; at the exhibition, I introduced myself to Nick, and then visited him in Loughborough.

This was an important episode in my scientific life as a theoretical physicist. We spend our days scribbling and tapping at computers, and it still seems miraculous that what we dream up can directly reflect or influence the worlds outside our heads. In my case the dreaming is about waves: light waves, quantum waves, water waves, sound waves, elastic waves... The mathematics – geometry, algebra, calculus – is similar for all waves, and I've been fortunate to uncover common features in their focusing and interference. Some of this has brought me back to Loughborough in more recent years, mainly to your mathematics department, where I've made some good scientific friends and learned from them; also, with much pleasure, joining a ceremony here: planting a cutting from Isaac Newton's apple tree (I picked up an apple that had fallen on the ground; now it is shrivelled and shrunken,, like a tiny brain). Last night I learned another connection with Loughbrorough: my academic grandson (the student of my student), Brian Winn, is now the Head of your Mathematics Department.

Theoretical physics is commonly thought of as a lonely activity. But nowadays much science, even theoretical physics, is collaborative. Many of you will have enjoyed collaborating with partners in your undergraduate research or laboratory projects. Or you might not have enjoyed it. You and your partner might have had scientific disagreements. This is nothing unexpected: disagreements are an important fuel for discovery; argument

is a way to get to the truth. Sometimes, our disagreements are robust, even emotional. But notwithstanding the media who like to emphasise conflict, scientific disagreements and competitions are usually fundamentally friendly. This is a lesson to carry over to the world outside science, where disagreements often become quarrels, leading to hatred and violence. I was the only person in my extended family to go to university, and when I was young my parents perceived all disagreements as hostile. When I brought my university friends home, and we debated into the night, my mother was embarrassed and tried to defuse what she misunderstood as hostility, saying :”Don’t mind him; he’s always arguing”.

You can think of this as advice: when you leave here as new graduates, whatever you do in life, try to disagree without being disagreeable. I’m deliberately contradicting myself. I’ve just returned from two weeks in Shanghai, where I enjoyed several sessions with undergraduates and high-school students. Every time, someone asked me for career advice, and my answer was always: “Don’t follow advice”. Yes: self-contradictory, inconsistent; but, as someone quoted to me when I accused him of inconsistency: *consistency is the hobgoblin of little minds*.

Science, especially theoretical physics, can be frustrating: much lonely time seeking what I call the elementary particle of sudden understanding: the *clariton*. These moments of scientific insight can be frustrating because they are so rare, but also because there are unfortunate *anticlaritons*, that arrive tomorrow and annihilate – cancel -what we thought was today’s clariton. But when a clariton arrives and persists, what immense satisfaction!

We all agree that recognition, like today’s here in Loughborough, is a source of great pleasure: your recognition, for all the hard work leading to graduation; mine, for the years of scribbling and the occasional clariton, But we should keep it in perspective: what you and I have learned is its own reward. Let me tell you about a reputed poetry competition in a remote village in Spain. Each year, people came from far to read their compositions, hoping to win a prize.

The third prize was: a silver rose

The second prize was: a gold rose.

The first prize was: a real rose.

I deeply appreciate today's real rose - the honour of being here - and to all my fellow graduates: congratulations, success and delight in whatever you do.

Thank you.