

# Higgs Event, King's College London, Wed 24 November 2010

## Peter Higgs: A Personal Introduction

### Apology

Ladies and gentlemen, let me first offer on behalf of Peter his apologies for not being here in person. Unfortunately he has had a recurrence of a medical problem he had some fifteen years ago and he is currently under medical supervision and treatment for this has been delayed for two weeks. Although this is not serious, it does limit his travelling. I am sure that all present would wish me to take their best wishes, for a speedy recovery, back to Peter. On Monday in Edinburgh Peter was filmed giving the lecture we will shortly see.

### Introduction

Peter was born on the 29<sup>th</sup> of May 1929 in Newcastle. His father worked for the BBC and the family subsequently moved to Bristol. At his secondary school, Peter was impressed by the honours boards featuring several entries for Paul Adrian Maurice Dirac. He was keen to find out more about this Dirac. Peter was an undergraduate at King's College London and graduated in 1950 with a First Class Honours degree. He completed an MSc at King's College and graduated in 1954 with a PhD awarded for a thesis 'Some Problems in the Theory of Molecular Vibrations'. Whilst at King's he hitchhiked to Edinburgh during the Edinburgh Festival and he was sufficiently impressed to seek to return in the future. Indeed in 1954 he came to Edinburgh for two years as a postdoctoral researcher. In 1956 he returned to London for a short period as a postdoc at Imperial College, but was disappointed not to be able to work with Abdus Salam. He then took a temporary lectureship at University College London. In 1960 Peter was appointed to a lectureship at the Tait Institute for Mathematical Physics in Edinburgh.

Peter recounted to me what he described as the Higgs-Kibble-Taylor mechanism. In 1960 John C Taylor had a lectureship at Imperial College, but wanted a lectureship at Cambridge University. There was a vacant lecturing post at Edinburgh and Tom Kibble, who was at Imperial College, was first choice for this. However Tom wanted the post that John C Taylor held at Imperial College. Peter meanwhile wanted the lectureship at Edinburgh. In fact this all worked out fine when J C Taylor was appointed by Cambridge. The rest as they say is history!

Peter will describe the events leading up to his 1964 papers so I will leave that for him to describe in his video address to you.

### Personal Recollections

I arrived in 1969 at the Tait Institute for Mathematical Physics, at 1 Roxburgh Street, Edinburgh, some 5 years later. Peter wrote his 1964 papers in his first floor office at 3 Roxburgh Street. The name of the institute raises interesting connections. Peter Guthrie Tait was appointed as Professor of Natural Philosophy at the University of Edinburgh in 1860 in preference to James Clerk Maxwell. It is said that this was because Maxwell was regarded as a poor teacher, whilst Tait was much better.

*Note added later: Peter G Tait and James Clerk Maxwell were pupils at Edinburgh Academy at the same time, but in different years. Indeed James Clerk Maxwell was an undergraduate at the University of Edinburgh for two years, but he completed his undergraduate studies at the University of Cambridge. Maxwell and Tait remained firm friends and colleagues all their lives, despite these events.*

James Clerk Maxwell subsequently moved first to the University of Aberdeen, then later to Kings College London. John Ellis is now the Clerk Maxwell Professor of Physics at Kings College, so I guess the University of Edinburgh had a role in the naming of John's chair.

Five years after my arrival in Edinburgh my first wife and I had our first beautiful daughter Sarah. We were living out of Edinburgh in Tranent in East Lothian, and Peter Higgs would often take his young sons Christopher and Jonathan for Sunday trip down the East Lothian coast. Shortly after Sarah's birth Peter and his sons paid us a visit and took turns in holding our newborn in their arms. I tell this tale as this occurs ten years after the crucial papers were written and today it is my pleasure to have with us today my daughter Sarah who you will all see is now 'full-grown'. Indeed I am pleased to tell you that she herself has two beautiful daughters Rebecca and Hannah. I retired a year ago after 40 years service at Edinburgh and its sobering that we are now 46 years on and two generations at least have passed and we are still looking for Peter's scalar boson.

For the record Peter was appointed a Reader in 1970 and somewhat belatedly to a Personal Chair in Theoretical Physics in 1980. He became a Fellow of the Royal Society of Edinburgh in 1974, a Fellow of the Royal Society in 1983 and a Fellow of the Institute of Physics in 1991. He retired in 1996, becoming a Professor Emeritus. He has Honorary Degrees from Bristol, Edinburgh, University College London and King's College London. Amongst his recent awards we can include the 1997 Institute of Physics Dirac Medal, the 1997 European Physical Society High Energy and Particle Physics Prize, the 2004 Wolf Prize in Physics, and the 2010 American Physical Society J. J. Sakurai Prize for Theoretical Physics.

Peter's son Chris was an undergraduate at Napier University in Edinburgh where my wife Catherine works and would issue the books he borrowed. She was in the habit of reporting to me in the evening that she had "observed another Higglet today".

Jody, Peter's wife, and Peter remained the best of friends despite being separated. Jody played her part in the picture of Peter in the poster for today's meeting, the 'Higgs Event'. When I learnt that there was to be an Open Day at CERN in April 2008, I thought it would be a nice idea if we could persuade Peter to visit CERN and the LHC experiments, before the LHC start-up. I sought Jody's advice first and she thought Peter might not want to go as "he did not like big machines, but she would see what she could do". Within twenty minutes Peter had called me to say he would be delighted to go as long as we kept the visit 'private'. Sadly Jody had also told me that her cancer had returned and very sadly for everyone she died very shortly afterwards. I have fond memories of my all too brief conversations with Jody.

A party from the University of Edinburgh including Peter did however make the Open Day Weekend, and the picture shown in the poster for this meeting is of Peter visiting the CMS experiment. We did visit all of the LHC experiments over four days. On our visit to ATLAS Peter Jenni, the spokesperson at that time said "We hope of course to see the Higgs at ATLAS first". I was organising the visit and had chosen to visit the experiment furthest away from the airport first. I had therefore to inform Peter Jenni that, with regret, "the Higgs had already been seen at CMS".

*Note added later: Tejinder Virdee had been our host at CMS and in his later talk he described how several of those showing the party around had raced out to the car park to get Peter's signature on their hard hats. I remember that later during the visit the experiments were selling these hard hats and that Peter and I had missed a splendid marketing opportunity, as we had not brought our own marker pens!*

Peter is very much a family man and on another occasion I remember showing his grandson, (Jonathan and Suzanne's son) the CERN Accelerator Complex Simulator at the Edinburgh International Science Festival. On asking him the innocent question "Do you know what the smallest particle is?" he responded "Don't be silly, it's the Higgs boson of course".

In retirement Peter spends much of his time with his family and continues his love of art and music. He can often be found having lunch in a gallery or museum and the Edinburgh Festival remains an important part of his year.

Peter is, perhaps surprisingly given the worldwide interest in the current search for the Higgs boson, both modest and unassuming. People who meet him will tell me "what a nice man Peter is". Nevertheless he is generous with his time with an increasingly demanding media, but much prefers those journalists who can follow the physics and report this accurately!

Over recent months I have helped Peter with several newspaper interviews and with filming by a Dutch team, by an Italian TV crew, for an interview for the Morgan Freeman series 'Through the Wormhole' and for a forthcoming US TV series based on another Brian Green book. It is always an immense pleasure working with Peter.

May I once again pass on Peter's apologies for not being at the meeting with you and I hope that the recording will be prove to be enjoyable and informative. Having sat through its recording I can tell you that it was done with in just one continuous take with no hesitations or pauses. All I can say is "Well done. Peter".

### **Acknowledgements**

Particular thanks are due to Bryan Pickering and Colin of the Communications and Marketing Video Unit at the University of Edinburgh who at short notice arranged to film Peter. They undertook the post-processing in time for me to bring the digital files and DVD copies with me. They were very impressed with Peter as he completed the task without the need for editing. I am sure you will enjoy it.

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November 2010