Experience at Kew: Reflections

# Personal

I found the experience of working in a loosely structured environment with considerable freedom of choice in my topics of study to be rewarding, as it gave me an opportunity to develop the skills that I genuinely cared about. This was a stark contrast to my time at university, which typically follows a rigid and inflexible framework of learning.

I attended meetings, both large inter-department seminars, and smaller specialised meetings, which focussed on broadcasting and communicating the research of others. These meetings meant that I experienced, at least briefly, many areas of study which I would otherwise never have encountered. Watching the debates that occurred, particularly in the smaller meetings, gave me an understanding of how a research-based institution operates its business.

Through my project, which was guided by my supervisor Joe Parker, I had to research a topic thoroughly, fully understand it, and then formulate a plan to answer a specific question on that topic. I’ve done this before, but never in a subject as unknown to me, as a physicist.

# Professional

Technically, I feel I developed my programming skills the most - from downloading and installing Java packages to understanding ArrayLists and the problems faced in debugging them. I learned to manipulate tree structures, and made use of the PHYLIP, NEXUS and FASTA file formats. In short, I gained a much better general understanding of Java programming. There was one particular concept I had to understand of particular significance – the ability to design a probabilistic simulation. This skill will undoubtedly prove useful to me in my career.

As a physicist, I have only used my mathematical and programming skills in physics-related applications, but the experience in Jodrell Laboratory has shown me the universal applications of such tools – for example, the widespread use of Bayesian statistics, or the value of computer simulations in any field. In particular, I achieved a level of understanding of MCMC simulation methods, an extremely useful concept to any more complex non-deterministic simulation. Additionally, I used a Raspberry Pi computer for the first time, a unique experience for me.

Finally, I had the opportunity to learn about many of the principles of biology which, as a physics student, I had not previously been exposed to – from a basic understanding of genetics and the chemical processes associated, to encountering ideas and concepts from evolutionary biology. I got the opportunity to learn these ideas from such well-motivated and accomplished workers in their field, at a world leading institution – and I greatly enjoyed the experience.