

## **An imaginary interview between a New Academic and E Ray Lankester, Professor of Zoology and Comparative Anatomy at UCL from 1875-1890.**

The interview is based largely on the monograph *E. Ray Lankester and the Making of Modern British Biology* by Joseph Lester and Peter J. Bowler published by the British Society for the History of Science in 1995. The tone of the interview is solely the result of my imagination. It is set at the beginning of the 20th Century.

### **The Interview**

New Academic (NA):

Sir Ray, you are recognised as a major figure in the History of Biology - as a scientist, teacher, Head of Department, and populariser of Science. When did your interest in Biology begin?

Professor Sir Ray Lankester (ERL):

I inherited it from my father. Well, not inherited exactly, but directly as a result of his influence and that of his friends. He was trained in Medicine, at University College London, actually, but retained a passion for Science. Visits of his friends to our house nurtured my enthusiasm further and I remember the Natural Historian P.H.Gosse, who shared my father's love of microscopy, Charles Darwin, T.H. Huxley and many others. I, too, developed an interest in looking through microscopes and I still have it today. There was, of course, much conversation to listen to when I was allowed to be involved, and my father was always busy with papers for the *Quarterly Journal of Microscopical Science*, which he edited. It was a great honour that I succeeded him in that role.

NA:

So, what of the other members of your family?

ERL:

My parents had eleven children, but only eight survived. I was always very close to my mother and wrote to her often. She was undoubtedly my greatest emotional support.

NA:

You went to St Paul's School. How did you enjoy school days?

ERL:

I remember always wanting to do well at school and being pleased that I was usually top of the class. Teaching at St Paul's was good, but I also went to hear lectures by distinguished scientists, including Hoffman on Chemistry, Tyndall on glaciers and anything delivered by Huxley. He was my major influence and guide through my

early years. After my father died when I was 27, it was always Huxley to whom I turned for advice, especially during the conflicts that I seem to create.

NA:

You have a reputation for being aggressive in pursuit of your goals. Being a large man, your outbursts of bad temper are said to be very impressive.

ERL:

I suppose that is the way I am: I'm certainly not to be deflected when I believe I am right. I prefer the direct approach. Yet, I feel unsure of myself sometimes and get bouts of self-doubt. My mother knows about my real nature of course, but I don't think many of my opponents are aware of it.

NA:

After school, you went first to Downing College, Cambridge and then to Christ Church College, Oxford.

ERL:

Downing was small and I always found it easy to make friends, so College life was most enjoyable. I rowed for Downing and became secretary of the Natural History Society. In my room, I had my candlesticks, egg boiler and favourite pictures, so there were also reminders of home. However, I knew that I was costing my parents a lot of money by being at Cambridge and I found the approach to teaching of Science there to be more about cramming than instilling a love of the subject. My parents, backed by Huxley, suggested that I try for a scholarship to Christ Church, Oxford and, being successful, I went there in 1866, when I was nineteen years of age. Academically, Oxford was good for me but I hated the social pretensions of the place.

NA:

Your career then led you to University College London, where your father had taken courses.

ERL:

First, there was travelling and the experience of working in some of the top laboratories in Europe. I joined in their research in Biology and Medicine and also admired the way the leading Europeans taught students. My greatest influence in teaching was unquestionably my mentor Huxley. At the School of Mines in South Kensington [later Imperial College], he used microscopy, experiments and observation in practical classes that supplemented lectures. Until then, teaching was dominated by lectures. By now, I was publishing my research work that had been carried out in various laboratories, including my time at the marine station in Naples. Imagine my joy when Darwin wrote to congratulate me on reading of the work in Italy.

I was then appointed to a Fellowship at Exeter College Oxford. Although able to do my own research, I found the approach to teaching stilted and I wasn't allowed the freedom to develop my own ideas. There was also the stifling influence of the elite; which was much more important there than the pursuit of knowledge. I attacked these attitudes whenever I could and, as I have an impressive stature, as you rightly pointed out earlier in our conversation, I must have seemed overbearing on occasions. I felt it though: Science is so important, and much more important than some meaningless social standing. Perhaps my unhappiness at this time was, in part, also due to the death of my father.

Well, I must return to the point you raise. I was always happy to be in London: to the life of the Clubs; the vitality of the people on the street; the Arts; and so many people with whom one could enjoy conversation. I was delighted to be appointed to the Chair of Zoology and Comparative Anatomy at University College London.

NA:

What did you find most attractive about University College, and what less attractive?

ERL:

I was attracted by the students: "poor and determined young fellows" I called them, but, most importantly, the freedom to develop both teaching and research. I introduced classes of rigorous practical training and my students had a broad approach as it is wrong to focus just on one type of organism without seeing its place in the breadth of Nature. In addition to museum specimens and experiments, students were able to observe live material, as we had both marine and freshwater aquariums.

Fortunately, I enjoyed teaching and was able to use many illustrations during lectures, while also drawing on the blackboard. It certainly seemed to work, and that was good, as my stipend was based on student numbers and there was little other money to support my research. I've always been concerned that, while some researchers have independent means, others have to pay their way. I was certainly one of the latter.

To the second part of your question. Well, London is so dirty and, when student numbers were low, so was my stipend.

NA:

Were you trained in how to teach?

ERL:

No, I don't think one can be. It came naturally to me and I always had the ability to give clear explanations and also hold the attention of an audience. That was partly because I was a shade intimidating, having a loud voice and a sense of my own status, but I also love communicating. It wasn't just natural ability though; many

hours were spent in preparation, and in drawing the diagrams and illustrations I had pinned up in the lecture theatre. I must also acknowledge the help received from numerous Assistants in the production of lecture materials.

Like all researchers, I was keen to communicate what I had learned and that is especially important in teaching students, whether undergraduates or those in the later stages of their education. It is also necessary to keep the public informed, which is why I turned to writing newspaper columns and popular books when I was retired from the Natural History Museum at 60 years old. I have also become embroiled in discussions about the future of Mankind while in my “retirement”.

NA:

You are renowned as a researcher.

ERL:

It is good of you to say so – but, yes, it is true. I published many research papers and have been regarded as a pioneer in the field of Embryology and in the application of ideas on evolution. It's not just for my own research findings that I've been recognised, for, as the Editor of the *Quarterly Journal of Microscopical Science*, I have encouraged the work of many young scientists, although they have also felt the power of my criticisms if their papers are not prepared to my exacting standards.

NA:

What is your advice to a young researcher?

ERL:

Get a good, broad education and have a passion for what you are working on. By broad education I mean that we should gain from formal classes, our reading and our experiences in life. Then there's a need for having the best mentors. They will encourage younger colleagues and are the source of testimonials for jobs. I've been lucky in getting testimonials from very well-known figures in Zoology and Biology, although asking these favours has always been a painful process for me. I just don't like doing it. Finally, steer away from mentors who put their own interests above those of Science.

NA:

You are known to support the idea that understanding the Chemistry of Life will help us understand many biological processes.

ERL:

Indeed. I think it is entirely possible that we will see Biology progressing in that direction.

NA:

That might be so, but my limited experience tells me that questions in Science are not met with answers but with further questions. I don't think that understanding Chemistry will provide answers; rather it will show us that living organisms are even more complex than we thought.

ERL:

You are both right and wrong. Organisms are certainly very complex indeed, but we must believe we can gain understanding by looking at basic processes.

NA:

Without seeming to be impertinent, Sir, I still disagree, so let me move to another question. Could you explain your views on the training of medical students?

ERL:

Yes. They must have a background in Zoology so that they have an understanding of the physiological processes and morphology of *Homo sapiens* as an animal. As in all teaching and research, it is a failing to become too narrow. Without breadth there is a lower chance of serendipitous discovery.

NA:

So, your time at UCL, although short, was very influential. Why did you leave?

ERL:

The simple answer is that my stipend was insufficient. I applied for the Regius Chair of Natural History in Edinburgh. However, I found that there was no lecture room or museum of any kind for me there, and I had to lecture throughout the year, making research visits to Europe of short duration. I backed out and returned to University College, spending my energy on the development of the Marine Biological Association and its new laboratory in Plymouth. There were struggles to get the MBA underway, but I have always believed in the importance of links between fishing interests and knowledge of the Biology of the seas, and I feel the same way about links between Biology and Medicine. It was always my intention to set up a Chair of Economic Zoology to cover these areas, while maintaining the need for development of Zoology away from financial constraint.

NA:

Then there was the Linacre Chair at Oxford and becoming Director of the Natural History Museum in South Kensington?

ERL:

Oxford was little changed from my time as a Fellow at Exeter College but I wanted the security of the income the Linacre Chair provided, as the numbers of students at

University College were declining. It was not a happy time and I missed the friendship and open discussion that I enjoyed in London. It is part of my nature to try hard to win over people to my point of view and, with hindsight, I can see that this makes me an uncomfortable colleague in some circles. My experience as Director of the Natural History Museum provided a case in point. Attempts were made by Maunde Thomson, the Head of the British Museum in Bloomsbury, to cut my research visits. He was a palaeographer and had no understanding of the need of an active Scientist to spend time in leading laboratories. It seems I was always in dispute with someone.

I continue to campaign for the proper place of Science in society. It is essential that the importance of Science is recognised in almost all walks of life.

NA:

In addition to your great achievements in Science, you are known for your love of conversation, of Nature and the Arts. Very few leading scientists could count Karl Marx and Dante Gabriel Rossetti as having been among their friends and you enjoy currently the close friendship of Edmund Gosse, Anna Pavlova and H.G.Wells, among many others.

ERL:

I like people and ideas and, while I am committed to teaching and research, there is more to life than that. It has been said that I am as passionate about Art as I am about Science, and I certainly wouldn't deny that the Arts world is important to me. Of course, I am free from family responsibilities, so have rather more time to spend on my interests than others. Although I hesitate to mention this, I had two engagements to marry but, when the second was broken off, I realised I was to live the life of a bachelor. But a clubbable, and highly social, one.

My friends extend outside the obviously popular groups of the day. I found Karl Marx very interesting, while not agreeing with his political philosophy, and I have always admired P.H.Gosse from the time he made regular visits to see my father, yet I do not share his views on Divine Creation. His son Edmund [Gosse] is altogether an easier character but he doesn't have his father's brilliance as a Natural Historian and illustrator.

NA:

Sir Ray, it has been a privilege to speak with you and I am certainly one of the many who have great admiration for your achievements. At the risk of sounding like Uriah Heep in Mr Dickens's book *David Copperfield* of fifty years back, I feel very humble in meeting you. We should laud your achievements and, especially, the many contributions you made to Science when you were at University College. Although you were there for a short time, everything seems to lead to and from that point.

ERL:

Thank you. I'm sure that you are right.

## **A Postscript for 2012**

It is clear that Ray Lankester would have been a wholehearted supporter of the UCL White Paper 2011-2021, stressing, as it does, the importance of Universities in teaching and learning, as well as in research. He would also laud the setting up of the new BAsC degree. Unlike some of those at UCL today, he would also have read the White Paper carefully.

It is also likely that he would be squarely against the overwhelming importance that medical research seems to have gained above all other academic disciplines. Of course, that is not just true of UCL, as the Provost's Newsletter of 12th March states that: "It was announced today that the Russell Group of research-intensive universities has invited four more institutions to become members. Durham, York, Queen Mary and Exeter universities will now take the numbers up from 20 to 24. The Russell Group are the big research universities, and all have medical schools except the LSE." No-one seems to question whether having a medical school is valuable except in economic terms and I'm sure that Lankester would do so in his characteristically direct way.

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