ENVIRONMENTAL, PUBLIC & GLOBAL HEALTH

Compilation of edited interviews conducted by the History of Modern Biomedicine Research Group, Queen Mary University of London

Edited by E M Tansey and A Zarros

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CONTENTS

THE HISTORY OF MODERN BIOMEDICINE INTERVIEWS (DIGITAL COLLECTION) AND THE CURRENT VOLUME

The History of Modern Biomedicine Research Group originated in 1990 as the Wellcome Trust's History of Twentieth Century Medicine Group, which in October 2000 became a part of the Wellcome Trust's Centre for the History of Medicine at UCL. From October 2010 until June 2017 it was a part of the School of History, Queen Mary University of London, principally funded by a Strategic Award from the Wellcome Trust.

Throughout that period, the remit of the Group has been to develop and strengthen links between medical historians, and medical scientists, and practitioners, and to stimulate and expedite the historical study of contemporary biomedicine, especially by creating material resources to inform such studies. These have included the famous Witness Seminar series, widely available freely online and in print,[1] and more recently a series of in-depth individual interviews.

The History of Modern Biomedicine Interviews (Digital Collection), curated by Professor Tilli Tansey, Mr Adam Wilkinson, Mr Alan Yabsley, and Dr Apostolos Zarros, comprises these interviews.[2] The Collection has been deposited in Queen Mary Research Online (QMRO), the online repository of Queen Mary University of London.[3] The material has been linked to Digital Object Identifiers (DOIs) and can be cited.

The History of Modern Biomedicine Interviews (Digital Collection) contains approximately 700 items including audio and video interview transcripts (as .pdf files), and video interview media files (as .mp4 files; video clips corresponding to the video interview transcripts archived). In addition, each interview entry includes a 'How to cite' file (.docx file) that acts as a guide on how to cite each item.

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[1] See http://www.histmodbiomed.org/article/wellcome-witnesses-volumes (accessed 28 March 2017).

[2] Tansey E M, Wilkinson A, Yabsley A, Zarros A. (curators) *History of Modern Biomedicine Interviews (Digital Collection).* Queen Mary Research Online. Queen Mary University of London, London, 2016–2017; https://qmro.qmul.ac.uk/xmlui/handle/123456789/12359 (accessed 28 March 2017).

[3] For more details, visit the QMRO website at https://qmro.qmul.ac.uk/xmlui/ (accessed 28 March 2017).

Readers should note that video interview transcripts deposited there are edited for clarity and factual accuracy, following the principles of oral history methodology. However, the Collection's audio interview transcripts are in most cases subject to enrichment by the interviewee and further editing. Related material has been deposited in the Wellcome Library.

We now present a further edited selection from that Collection. This, the first of a three volume series of 'Voices of Modern Biomedicine', focusses on environmental, public and global health. Sections have been selected and edited to highlight the broad features of each interviewee's career and contributions, and much detail has been omitted. Readers wanting to learn more are encouraged to read the full interview and other material listed in the 'Related resources' section at the end of the volume.

ACKNOWLEDGEMENTS

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We would like to thank Ms Lynda Finn for conducting a number of these interviews; Ms Emma M Jones, Ms Caroline Overy, Mrs Sarah Beanland, and Ms Fiona Plowman for their editorial assistance; Mr Alan Yabsley for his editorial and technical support (including filming and production of several of the original interviews); and Mr Adam Wilkinson for his excellent project management. We are grateful to Mr Jeremey Claridge, Dr Stephen Welburn, and Mrs Sarah Molloy for their time and assistance in setting up the History of Modern Biomedicine Interviews (Digital Collection), assigning DOIs to the interview transcripts, and making sure this Digital Collection is well integrated in QMRO. We are also grateful to Mr Akio Morishima for the design and production of this volume; the indexer Ms Cath Topliff; and Mrs Debra Gee for transcribing the original interviews. Finally, we thank the Wellcome Trust for their financial support.

ILLUSTRATIONS AND CREDITS*

* Figures 6, 7, 8 and 10 are still images taken from video recordings by Mr Alan Yabsley, QMUL, and reproduced courtesy of the Wellcome Library, London. Unless otherwise stated, all other photographs were taken by Thomas Farnetti, Wellcome Trust, and reproduced courtesy of the Wellcome Library, London.

ABBREVIATIONS

AIDS	acquired immunodeficiency syndrome
BLF	British Lung Foundation
BMJ	*British Medical Journal*
BTS	British Thoracic Society
CEO	Chief Executive Officer
CES	Centre for Extension Studies
CIWM	Chartered Institution of Wastes Management
COPD	chronic obstructive pulmonary disease
Defra	Department for Environment, Food & Rural Affairs
DFID	Department for International Development
DGH	District General Hospital
DoE	Department of the Environment
EA	Environment Agency
EIA	Environmental Impact Assessment
EMF	endomyocardial fibrosis
ESA	Environmental Services Association (formerly National Association of Waste Disposal Contractors)
EU	European Union
FOE	Friends of the Earth
GLC	Greater London Council
GMC	General Medical Council
GP	general practitioner
HGV	heavy goods vehicle
HIV	human immunodeficiency virus
HMIP	Her Majesty's Inspectorate of Pollution
HNC	Higher National Certificate
HSE	Health and Safety Executive

ISWA	International Solid Waste Association
ITU	Intensive Therapy Unit
LARAC	Local Authority Recycling Advisory Committee
LCC	London County Council
LWRA	London Waste Regulation Authority
MDR-TB	multi-drug resistant tuberculosis
MP	Member of Parliament
MRC	Medical Research Council
MRCP	Member of the Royal College of Physicians
MRF	Materials Recovery Facility
NERC	Natural Environment Research Council
NHS	National Health Service
NRA	National Rivers Authority
OU	Open University
PAS	para-aminosalicylic acid
PLA	Port of London Authority
PR	public relations
SERA	Socialist Environment and Resources Association
SR	Senior Registrar
SHO	Senior House Officer
TB	tuberculosis
THET	Tropical Health and Education Trust
TRU	Tuberculosis Research Unit
UCL	University College London
WAMTEC	Waste Management and Technologies
WHO	World Health Organization

INTRODUCTION

Over the last five years, the History of Modern Biomedicine Research Group has undertaken a number of audio and/or video interviews with several individuals who have contributed to the making of modern biomedicine. These interviews have formed the backbone of the History of Modern Biomedicine Interviews (Digital Collection), and compilations of some of these interviews' transcripts are now presented in this three-volume series as 'Voices of Modern Biomedicine'.

The current volume is focused on environmental, public and global health. It is a compilation of edited interviews with well-known and less-known people who have shaped and witnessed the UK waste and air pollution management reforms, have been at the forefront of tuberculosis treatment and/or HIV-infection management, and have contributed to the establishment of high-quality medical education and practice in less privileged countries of the world. From the political struggle of Dame Joan Ruddock to introduce the Control of Pollution Act (1989) and the Household Waste Recycling Act (2003), to the foundation of the Tropical Health and Education Trust by Professor Sir Eldryd Parry, and the design of Professor Andrew Nunn's international clinical trials of tuberculosis treatment, this volume deals with ongoing public health concerns and global health challenges.

For most readers, the interviews included in this volume will shed more light on the ways the interviewees have witnessed and addressed the challenges of managing major health hazards over the last decades of the twentieth century: their thoughts, their initiatives, their successes and their disappointments. The transcripts have been edited so as to include those aspects of their careers and achievements that were considered of broader interest and suitable for the shaping of a more comprehensive narrative; obviously, more details can be found in the original transcripts.[1]

For those readers with an interest in more specific aspects of environmental, public or global health, these interviews will be a valuable oral history source on fields that can further inform our understanding and contextualization of important aspects of modern biomedicine.

Professor Tilli Tansey
History of Modern Biomedicine Research Group
Queen Mary University of London

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[1] See 'Related resources' at the end of this volume.

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Figure 1: Dr Chris Coggins

Dr Chris Coggins PGCE PhD FCIWM FRGS FRSA (1947–2017) was Lecturer and Senior Lecturer in Geography, then Reader in Waste Management at Luton College of Higher Education / University of Luton from 1972 to 1997. From 1993, he was also Director of the institution's Centre for Waste Management. He became Director of the University of Sheffield's Waste Management and Technology Centre and worked there until 2001, when he started his private waste management research consultancy, WAMTEC (Waste Management and Technology Centre), of which he was Director until his retirement.

1 Coggins, Chris*

Lynda Finn: Thank you so much for agreeing to this interview Chris; can you tell us a little about when and where you were born, and your family background?

Chris Coggins: 1947, in a village called Oakdale in South Wales, a coal-mining village. My father was a coal miner until 1947 when nationalization happened and they kicked a lot of people out who had a small amount of dust in their lungs, pneumoconiosis, and he then worked as an electrical engineer with the South Wales Switchgear. My mother worked in a shop before she was married but after getting married didn't do any other work.

I basically went through primary school, sat the 11+, and in those days I went to what Neil Kinnock used to call the Eton of Wales: Lewis School, Pengam.

LF: What were your childhood memories of schooling?

CC: I was a slow starter, I had a lot of absence in the early years because I suffered badly from asthma but I went through, I had seven O Levels and went into Sixth Form and certainly I think I was regarded by the teachers as a bit of a late developer. In the Sixth Form I obtained an A and two B's and then went on to Swansea University to study geography. I graduated with a 2:1, and then I obtained funding to do a PhD at Swansea University on 'Location Decision Making in Mining', so basically since the third year of my degree I've had an interest in resources, particularly mineral and energy resources.

LF: Tell me a bit about the PhD.

CC: My Thesis was looking at the principles of decision-making about whether to mine a particular deposit. I covered the various theories that go with location decision-making in industry, and location decision-making in agriculture, which were already well established. Mining was a bit of a Cinderella subject in those days and I looked at two case studies: gold mining in South Africa, and s salt mining in Cheshire. So two extremes in terms of historical development,

* Edited passages from the interview conducted by Ms Lynda Finn, 23 June 2014, in the School of History, Queen Mary University of London. For more details, see 'Related resources' at the end of this volume.

in terms of the value, but similar in terms of location decision-making, in that once a mining area is discovered then you find that the decision-making is to go from the outcrop deeper and deeper into the deposit.

Obviously, coming from a coal mining area in South Wales I was well versed with the way in which the coal field had developed. The two case studies meant that I was looking at one which was a global mining industry, and the other which, historically, had been very much the heritage for the British chemical industry, in north-west England, with the building of canals, of navigations to service it. In the gold in South Africa there was also the need for quantities of labour and at one stage, large numbers of Chinese were immigrated into South Africa to work in the mines, and in that sense they were two very contrasting studies. I didn't finish within the three years but I did teacher training for a year in Swansea and was still finding it difficult to get jobs. I secured a lectureship in geography at Luton, at that time it was Luton College of Technology, and. I went there in 1972 and my PhD took a long time to finish. I think at its peak I was doing 27 contact hours a week, plus lecture preparation plus assessment and everything else, which meant that the PhD was parked during most of the year. I was finally awarded my PhD in 1982.

In the 1980s having obtained a PhD, I then started looking around to do some research with David Cooper who was Head of Geography, a physical geographer. We thought about doing some work about application of sewerage sludge to land, and we went talking to various people and were told, 'You have no chance. You have no science background, you have no facilities.' We had to rethink, and in 1983 we went and talked to the waste disposal people at Bedfordshire County Council. And they listened and said, 'Well, one thing that we're interested in is, we have a number of civic amenity sites.' These days they tend to be called Household Waste Recycling Centres. In Bedfordshire they were called Tidy Tips, which indicated a particular philosophy. And they said, 'One of the things we're interested in, the site in Luton is near the airport and is near the boundary with Hertfordshire; we'd love to know how many people use the site from Hertfordshire.' So that was a key and we went away, we did literature research, we contacted the Department of the Environment (DoE) as it was in those days. They had very little data. We found some questionnaire surveys, and I then modified them, used my background of lecturing on questionnaire surveys to make them more substantive and we used the students on the Higher Diploma in Geographical Techniques course to interview at the site on a weekday and a Saturday, and so we had a chunk of data. I then processed

all the data, we wrote it up as a report and sent it to the County Council. We also sent it into the Department for the Environment. We carried on doing literature searches and began accessing anything we could find on civic amenity sites: questionnaire surveys, histories, descriptions of layout, and descriptions of management. I suppose I probably still have one of the biggest databases of literature on civic amenity sites.

LF: What did the Council do with the information you provided?

CC: I don't think they did very much. The conclusions that we came up with was that not that many people from Hertfordshire used it as a proportion but what we did, by taking the literature research, we provided them with feedback and I lectured across the country. My first lecture was in 1984 to the Chartered Institution of Wastes Management (CIWM) and we wrote a report on good practice on civic amenity sites. In the next year or so we carried on doing the work, I was still lecturing, and we contacted the DoE and they came and visited us in Luton. The Deputy Vice-chancellor hosted them to lunch and then we were invited to the DoE and they said, 'We like what you've been doing. If we gave you a chunk of money would you do something nationally for us?' So we said, 'Yes.' I said, 'We both teach, I have a full timetable, we'd need to employ a Research Assistant.' They said, 'Okay, well we'll give you £25,000 and could you let us have a report in about 15 months' time?' We said, 'Yes, went back to college, went to see the Head of Department and she said, 'I don't believe you. Nobody gives people like you money like that.' I then went to the Deputy Vice-Chancellor, and she said, 'Great. Do you want a room?' Basically within a year I had changed from 95 per cent lecturing to about five to ten per cent lecturing.

LF: Which year are we in now?

CC: This is 1984/85. We selected six civic amenity sites with different characteristics: a very big one in Derby in the city centre; one in Bedfordshire, a rural site; one in Aylesbury on the edge of an industrial estate; and then two in Brighton and Hove. At that time there was a county boundary running between East Sussex and West Sussex, and their civic amenity sites had different opening hours. We were interested in seeing how much interplay between different postcode areas and the use of the tips took place because of the boundary in between, and the different times. The Brighton site closed at lunchtime on a Saturday for the weekend but we found that all over the country about 50 per cent of site users would use a site at weekends, basically gardening clearance and DIY (do it yourself) clearance and this sort of thing.

There was one in Northamptonshire, and we chose it because there's always been interest in recycling from the travelling communities, often waiting at the gate to take stuff from people going into the site. The Head of Waste in Northamptonshire decided that if you can't beat them, join them all the civic amenity sites in Northamptonshire were then contracted to licensed totters. These were people with expertise in getting rid of stuff; and the council didn't have to employ people on site, all they had to do was send their officers regularly to visit it. So it was a win-win situation, and at the Northamptonshire site anything that was worthwhile was picked out, at the site we worked with, the person who ran it, his wife ran a second-hand shop, and anything that was sellable she took. This was 1984 to 1986. As well as doing the questionnaire surveys, we were asking people what they were bringing, and we collaborated with Warren Spring Laboratory, the Government laboratory for research in minerals and waste. They were based in Stevenage, which was near to Luton, and they did a lot of waste sorting at the sites we were doing questionnaire surveys. They were doing detailed analysis of individual loads and also waste in bulk sampling. We wrote reports: we did a report on each site that went to the local authorities concerned; we did some themed reports, things like mode of transport, the majority of people were coming by car, you'd get some vans, and you'd get occasionally people on bicycles; and various other particular themed reports.

We used to have regular meetings with the DoE officers, and towards the end they basically said, 'Fine, thanks. What else do you think needs doing?' It was a very unusual type of funding relationship. We said, 'In the late 1970s, local authorities started introducing wheeled bins that took 240 litres compared to the typical 90 litres of galvanized dustbins. Therefore it is almost certain that wheeled bins are going to divert material from the civic amenity sites – we should investigate this'. So we put forward that proposal, with Warren Spring Laboratory again, and in 1986 we were awarded more money, and we had a project where we worked with Nottingham County Council at three civic amenity sites. The idea was that we worked on those sites doing questionnaire surveys and sampling for 15 months before the city of Nottingham introduced wheeled bins in those areas. Warren Spring Laboratory sampled the household waste being collected in dustbins. Then they introduced wheeled bins and we did another 15 months of survey work. The main aim was to find out what impact wheeled bins had had, and as we had suspected, but we could then show it loud and clear, that with wheeled bins the average weight increased by 50 per

cent, and the composition meant that there was more soil, more garden waste, more bricks, engines, all sorts of things, cardboard boxes and glass. Again, I suppose, it was indicative of a different component of consumption behaviour.

What we have found over the years was that a lot of the people using civic amenity sites were using them to get rid of garden waste and bulky waste – they were the dominant features. Some sites had waste oil tanks, some sites had a bottle bank, a can bank perhaps, a paper bank, but really the emphasis in the 1980s, when we were first working, was to get the stuff in and get it disposed of. It either went to landfill or went to incineration, and a very small component was recycled. It would be mainly heavy metals like refrigerators, washing machines, whatever. In those days the local authorities didn't do composting so the garden waste went to landfill, and you might have had just a small component of paper, bottle and so on but not really very much. In those days virtually no local authority did a great deal of kerbside recycling. They might have collected paper in a trailer being towed behind the rubbish lorry but once wheeled bins were introduced they couldn't have a trailer, so that meant that changes in the vehicles as a result of wheeled bins had a knock on effect on recycling. So that was 1986 and we did various other pieces of work for local authorities.

LF: Clearly the fact that the DoE asked you what else needed doing meant that your work was very important and valuable: do you know if they changed their policy or made any adjustments following that? What do you think they did with the findings?

CC: It's always very difficult to say what influence your work has. I think one of the things that came through loud and clear was the lack of data, and particularly the lack of composition data. In those days nearly all waste – and, again, back in the 1980s about 85 per cent, 90 per cent of household waste – went to landfill. Landfill was cheap, it was widely available, there was no real control other than making sure that there weren't any leakages and the occasional hiccup where waste was dumped and it led to changes in legislation. There was no weighing, so nobody knew what was going into landfill sites, they didn't know how much was going in. We were interested in the data side and we collected a lot of data – local authorities often weighed their dustbins one week in a year and multiplied it by 52; that was the state of their data.

One of the big changes that we contributed to was that eventually the Government realized it had to collect data and in the 2000s the Government set up what is now called WasteDataFlow that every local authority has to submit

detailed annual records of tonnages to, composition breakdown and where it all goes. That was a revolution, and although a lot of local authorities complained about it, it is now accepted as standard practice. But that wasn't the case in the 1980s, so that was one big change. Also, by the mid-1990s people began to realize the amount of waste that had a value going into civic amenity sites.

So the germs of where we are today were beginning to appear in the 1980s. We started bidding for work elsewhere, and in 1989 when the Government decided to fund a number of recycling initiatives to introduce kerbside recycling, to get households to separate out recyclables, and Sheffield was the UK's 'First Recycling City', and they wanted it monitored so they invited applications. So Luton, plus Warren Spring Laboratory, and an organization that we had established contact with in the Midlands, a company called Midland Environment Limited, and we went in against some of the big consultancies and we won a three-year contract to monitor Sheffield as the First Recycling City. We established a protocol for monitoring kerbside collection. We did questionnaire surveys, we did surveys of commerce and industry, and Warren Spring Laboratory did a lot of the composition analysis, and did a lot of the analysis of what was in the different components in terms of heavy metals, in terms of other substances. We wrote a report, a summary of which was sent to every local authority as guidance in 1992/3. The Government then funded a 'recycling city' in Scotland, they funded Cardiff as a recycling city in Wales and we did work in Cardiff, and they funded Devon as a recycling county. So we then went to Devon regularly. We did surveys in Devon, in Exeter, Newton Abbott, in Kings Tamerton, and they were all focused on civic amenity sites and by then a bit broader in terms of asking questions about recycling and moving into recycling.

So in that early period of the early 1990s I had research students, research assistants, we were doing research consultancy, writing reports for clients, doing conference papers, the occasional published paper but my professional view in those days was, my first commitment was to complete consultancy within budget and within the timescale, provide reports and seek more money. Secondly, publicizing the work through conferences and publications was a low priority. At that time the Research Assessment Exercise was emerging, and we didn't have a great deal of publications and that was partly deliberate on my part that I didn't see the need. I've never been an academic who had been in the system of publish or perish, you know, I've been able to survive without publishing. We did a lot of lectures and became involved in a lot of committees, I sat on a lot of committees in CIWM so I was involved a lot nationally. Then

I was asked by the Head of Department to put in a bid to get funding to run a postgraduate course so it was one of the first MScs in waste management in the UK and that was in 1993/94.

I suppose I'd reached a stage where I was beginning to feel I'd reached, not a brick wall, a stage where I didn't think there was a great deal left for me to do in Luton. I counted out, somebody asked me once after that date, and between 1983 and 1997 I reckon we had done over 30,000 user surveys at civic amenity sites. All of that data is still in my garage, all of the reports that we did. In those days it was nearly all typewritten, or it was pre-electronic, so none of the data was held electronically; it's all hard copy.

LF: Clearly Luton was in the lead as an academic institution in this field. Which were the other developing institutions?

CC: Sunderland had developed an MSc in waste, but they had virtually no accompanying track record. University of Central Lancashire, the same. They had an MSc in waste but Central Lancashire was perhaps the most different because that was run by one person, and what she did was basically invite lots of external speakers to talk about different aspects and her role was then to use that as a basis for teaching, whereas at Luton we couldn't afford to bring in people, we had to do it all ourselves. Luton I think was almost unique in having the MSc-, PhD-students and the consultancy all in an area of waste management. Other universities had interests in other aspects of waste, so Sheffield has had a long interest in incineration and thermal technology. Places like Southampton, a long history in landfill. But none of them at that time had what I call a package within waste management. They were more focused on research in specific aspects of waste, and it was usually the engineering side of things.

In waste disposal the people were either mechanical engineers or landfill engineers, in waste collection authorities you'd have people with a transport interest or an engineering interest because their main concern was operating lorries, operating bins. It was only after the mid-1990s that we began to see a range of other people moving in. You began to see geographers, economists, sociologists, moving in because after the late 1990s you began to get recycling officers appointed, and they didn't need the engineering. But many of them brought other skills to the table. So yes, when we started meeting people in the 1980s the majority of people were mechanical engineers, civil engineers and that was it because it was either incineration or landfill.

In 1997 I reached a bit of a dead end, and a job came up in Sheffield. Sheffield had applied to Europe and had been awarded a large chunk of money to work with small and medium-sized enterprises on waste management. There was nobody with a background in Sheffield and I think the Department of Civil and Structural Engineering had the short straw and they hosted me.

LF: And just tell me your job title then?

CC: I was Director of WAMTEC. I had a manager, a computer person, an administrator, and a gofer, somebody who used to work in the office at Sheffield City Council, and I took one my PhD-students with me. I was based in the Department of Civil and Structural Engineering, I never did any lectures in the department. I knew the people in the Incineration Department because of the work with Sheffield, and I started in about 1998/99 doing an annual lecture for their MSc course in Chemical Process Engineering, and I've been back every year since to do it. The idea for WAMTEC was to work with small and medium-sized businesses in South Yorkshire and Humberside, to promote resource efficiency, resource choice, to promote better waste management and to promote new business development in waste. We worked with small companies, we worked with agencies, like Business Link, like the Environment Agency (EA), formal groups, informal groups in South Yorkshire, Humberside. I used to do lectures, go and meet with businesses, and everything we did was free of charge for businesses. So in 1997 I switched from civic amenity sites, recycling and household waste to commercial waste. So that was Sheffield 1997 to 2001. We obtained three grants from Europe, one of them looking at remanufacturing in 1999, which was before its time but we worked on it.

LF: Tell me more about that.

CC: When things like refrigerators, televisions, vehicles, all sorts of domestic and industrial goods reach the so-called end of their life they tend to get thrown away. Take a computer, it's the easiest example. It reaches the end of its life, what happens? Basically, it will get destroyed. Everything is taken out of the computer, the shell that is left goes for metal recycling, the hard disks are all crushed with hammers so they can't be reused, and that's it. Effectively, the shell if it's made of metal will be recycled, if it is plastic may not have been recycled, and increasingly now with electrical goods a range of precious metals are recycled. You have computer screens, keyboards, anything. They may contain gold, palladium, all sorts of precious metals in very minor quantities but, again, to give you an idea, if you take gold, in gold mining in South Africa, these days

you can get something like 5 g from a tonne of ore. If you process a tonne of electrical equipment, electrical electronic equipment you can get 100 g. If you process a tonne of mobile telephones you can get 280 g of gold out of it, so there's gold in the waste.

If you take some of the early development in small computers, the Sinclairs and the ZXs, there's more gold in those machines than in modern computers, and you know the joke being that if you talk to some people, if you have one of those in the loft, keep it because it will eventually be worth a lot of money purely for the gold that's in there. So that's been the historic side of things, and it's still a very big component. But the emergence of remanufacturing, which we did some work on when I was at Sheffield, it's become more and more important. Since 2008 and the new Waste Framework Directive, waste prevention is at the top of the waste hierarchy followed by reuse, and that means taking an old machine and either repairing it, replacing it, putting some parts in it. I can remember 1995/96, when I was at Luton, we did some work with Sony. They had a site in Buckinghamshire, a converted barn on a farm and they were taking in old photocopiers from all over the world, they were taking everything out of the box, cleaning the box, and they were then replacing all the operational parts with up-to-date parts. As time has gone on they would replace the mechanical with digital, and whatever. But it was remanufacturing, it was basically taking it apart and going back to square one.

That is what remanufacturing is all about, and increasingly you'll find that companies like JCB (J C Bamford Excavators Limited), they sell but more often they lease their diggers and their plant equipment and when they've reached the end of a contract they go back to JCB and they remanufacture it and are sold as new. A concept that emerged when I was in Sheffield a bit after that, people talked about repurposing, and you think, 'What does repurposing mean?' What people in Sheffield started doing, was that when that mobile phone reaches the end of its life, they said, 'Well, there are objects in the house like this. Think of a television remote control.' So I think things like remanufacturing, repurposing have become more important because they're at the top end of the waste hierarchy and all moving away from the bottom, which is landfill.

In the summer of 2001 there were no more grants, I went as far as I could in the university As with many universities these days and then, the department in Sheffield operated on a five-year Head of Department cycle, so the Head was changing that summer and the offer I was given was, 'I can keep you on until Christmas but none of your staff, and I'd expect you to pay me back at

Christmas by any money you earn, and you become self-sustaining afterwards.' So it wasn't much of a deal and I worked hard to get all of my people employed.' So in the autumn of 2001, I moved back home to Luton.

So, since 2001, I've worked on my own, done a lot of work on my own and a lot of work as a subcontractor with other consultancies. I've dabbled in all sorts of aspects but I suppose, increasingly, I have been involved more and more in what I call technology options for dealing with waste. I've done no questionnaire surveys because I've no access to a team. I've advised on questionnaire design, I've advised on reports, draft reports but increasingly I've been involved in technologies for dealing with waste. Historically, if you mention technologies for dealing with waste they would be incineration or landfill. Landfill I've not done that much on but I have done a lot of work on incineration, and my interest in that is promoting incineration with combined heat and power, not just producing electricity, as a valid option in waste management. We can prevent as much waste as possible, we can recycle, but there are physical limits to recycling. Those may be practical, they may be economic; they may be environmental.

At the one extreme, you have environmental groups saying, 'We should be recycling 70 to 75 per cent.' Wales and Scotland have taken that on board. They now have, they are planning towards recycling targets of household waste of 70 to 75 per cent by 2025. I still think that is perhaps idealistic. In England, the only target we have is the one set down from Europe and that is 50 per cent by 2020. My view is that there is still going to be 25 per cent. Increasingly, landfill is less and less of an option, so my view is energy-from-waste, waste can provide a source of electricity: it can provide heating, it can provide cooling, which is becoming increasingly important with big malls, warehouses, shopping complexes, and fuels. That's the area that I've probably done more in. I've done consultancy, I do my own research, I still probably on average, do about ten invited lectures a year.

From 2003 to 2010 I was a member of the Department for Environment, Food & Rural Affairs's (Defra) New Technologies Demonstrator Programme Committee, and this was a £30 million programme to fund technologies new to the UK to process biodegradable municipal waste, so it doesn't have to be new, it could be operating somewhere else. On that committee we established the guidelines, we set the procedures in place, we interviewed, we evaluated bids, we interviewed and then I was on the subcommittee, which monitored these all the way through.

LF: And what are you doing now, consultancy wise? What's the current piece of work?

CC: At the moment I only have one piece of consultancy and that's working with a European project that is run out of the University of Aachen in Germany and they are working on processing waste to produce a high quality refuse-derived fuel with a high biogenic content. I'm the only person from the UK that is part of that team and one of my roles has been to provide literature about what is happening in the UK.

LF: Which do you think are the best practice countries? Which are the countries in the lead?

CC: Well again, it's going back to questions I've discussed earlier; if you look at waste management in Germany, the Netherlands, Switzerland, they all have very high recycling rates and very high energy-from-waste outputs. If you go to Switzerland, they'll say, 'It's 49 per cent recycling, 51 per cent energy-from-waste'. 'No landfill?' 'Oh, any landfill we send to Germany' [laughs]. In terms of the UK, we have four waste strategies: England, Scotland, Northern Ireland, and Wales. Wales now has a recycling rate of household waste of 54 per cent. In England it has reached 44 per cent and it is now flat, and nobody seems to be doing much to change it. In Wales, there are 21 local authorities. They are all unitary authorities, in other words for waste they're concerned with collection and disposal. In England you have 370-odd local authorities, just over 100 of those are unitary. The rest are county council and collection authorities so therefore you're going to have a county council and each waste collection authority will do its own thing underneath it. One argument is why not get everybody to have the same system, the same number of bins, the same size of bins, the same colour of bins and the same advice.

LF: You said earlier that a more uniform collection policy might be useful, and householders might know what's going on if the system was straightforward. Do you think there's any chance of that happening?

CC: I don't know, but certainly a uniform collection system is one way. The other issue that we have is a tremendous variety in size of local authorities in England. You have London, you have Birmingham and then you have small, rural waste collection authorities, so size is a barrier. I think the scale of infrastructure and the uniformity of household collections are major barriers and it's probably seen as political dynamite because of the cost, the disruption. At the same time it would mean a large amount of plastics that would be available for recycling

if they could be collected back. And waste is waste, therefore why make an artificial demarcation between household waste and commercial waste if they're the same? If you take household waste, you can think, 'I produce cardboard, I produce glass bottles and jars, I produce food waste.' Restaurants do all of that, hotels do it, and yet the usually the commercial premises will have a contract with a waste company whereas with household waste it's the local authority's public service. Increasingly, there's a realization that one needs to manage the sectors together, particularly for those materials that are of a similar nature. That is what happens in Germany and the Netherlands, and it's beginning to happen in the UK.

LF: If you were to look forward, Chris, say 30 years, how do you think things might look?

CC: It's probably going to be more recognition of the resource value of waste. At Government level, I think waste is one of those subjects which has been a football between political parties. There needs to be consensus if we're going to get anywhere, but, of course, that is very difficult when you're talking about the diametrically-opposed parties. You have, I suppose, the extreme in 30 years' time: will the European Union (EU) exist? Will the UK be part of it? That has major implications.

LF: Improvements in the industry have really been driven by EU policy, they've been beneficial to the UK?

CC: I suppose one of the main UK policy responses to meet the higher level of strategies has been the introduction of the Landfill Tax. That has probably been the single most important policy in the UK, if not Europe.

The Landfill Tax was introduced in 1996 by John Gummer and the aim was, in economic jargon, to internalize the externalities. In other words, landfill was deemed to have various detrimental impacts on the environment, such as methane leachate explosions, and by introducing a landfill tax you could try and get companies to consider alternatives. When that tax was introduced, we were landfilling 85 per cent of household waste. The Landfill Tax was something like £7 a tonne that was added to a typical gate fee, probably of about £10 to £15. The Government then decided it would introduce an escalator so that the tax went up every year, and the Landfill Tax on the 1 April this year went up to £84. The gate fee average is about £20. Therefore, in 20 years, the gate fee has gone from £12 to £20; the tax has gone from £7 to £84. That is regarded by most in

the industry as being the major stick, because it has forced authorities to change, it has forced companies to change, and it's been underpinned by everything being weighed so everybody knows the transparency of the transactions.

LF: So innovation has been forced really by increasing taxation?

CC: Yes, and that means companies have been forced to find alternatives, which means generating less waste. Local authorities have been forced to change by introducing recycling to divert waste from landfill, and in both cases, technology providers have been looking to anaerobic digestion. Anaerobic digestion was first used in the 1900s based on sewerage collection. Today there are well over 400 anaerobic digestion plants located at the sewerage plants. The number of anaerobic digestion plants using food waste is about 120. There's been a rapid growth in the last four years but still far less than the sewerage, one of the strands that might occur in the future is those two sectors moving together. But will it happen? It depends.

There was a big report on the sewerage industry and I think they did some questionnaire surveys and focus groups and so on, and the general view was that the water industry is seen as a public service whereas the waste industry is seen as a profit-making. Should waste be the fourth utility? We have electricity, gas, water. Why not waste as the fourth? Would local authorities want to lose control of their waste? There are all these things that could occur, it's a question of whether anybody will have the power and the strength and the commitment to do it. With 20, nearly 30, million people living in England, 370-odd local authorities, it's a big task to change.

LF: I want to thank you for an absolutely fascinating interview. You've achieved a great deal and you have all this knowledge and expertise.

CC: Thank you.

Figure 2: Mr Jeff Cooper

Mr Jeff Cooper MSc (b. 1949) became Waste Recycling Coordinator at the Greater London Council (GLC) in 1982. He was subsequently appointed Waste Planner for the London Waste Regulation Authority (LWRA) where he also represented the International Solid Waste Association (ISWA) Recycling Working Group as its Vice-Chair. He joined the newly formed EA in 1996 on a project for the development of regulations for packaging waste. He was elected Junior Vice President of the CIWM in 2004, and served as President from 2007 to 2008. From 2009 he worked as an independent consultant and journalist.

2 Cooper, Jeff*

Lynda Finn: Jeff, can you tell us something about your childhood? When and where were you born?

Jeff Cooper: I was born in Hampton, in what was then Middlesex in 1949. My father was a legal executive. My mother did very little actual paid work until the time that my parents moved into a shop down in Portslade. That was mainly because she wanted to work, she felt that just having children and taking care of children was unfulfilling and so they agreed that she would manage the shop.

LF: You grew up down in Portslade?

JC: My early years were in Hampton, then at the age of about six we moved down to Portslade where I had quite a conventional childhood. Mainly it involved myself together with my two younger sisters and lots of friends getting into hijinks around and about the local area. So it was all very localized. I used to go, when I was a bit older, for quite long walks up across the South Downs in particular because that was reasonably close and it's a nice open space, and it's very nice to walk in.

LF: And your schooling?

JC: Well, I went to a local primary school, a local junior school and then we moved to Hanglton and then I passed the 11+ and went to Hove Grammar School for Boys, the Windmill School as it is now. I had quite a good education there apart from one minor disruption when I was demoted from the first class to the B class for a period of two terms after the first term, which was a bit disruptive. It was a personality clash between myself and the English teacher, for what reason I can't really fathom but it had occurred, and I think some of the other teachers were actually quite disappointed that this had occurred. But I got back into the first stream after that, after the examinations at the end of the first year.

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* Edited passages from the interview conducted by Ms Lynda Finn, for the History of Modern Biomedicine Research Group, 19 June 2014, in the School of History, Queen Mary University of London. For more details, see 'Related resources' at the end of this volume.

Apart from that, everything went swimmingly: took O levels at the end of the fourth year, took more O levels at the end of the fifth year and even did a couple of extra O levels as well, so I ended up with 12 O levels, and then got two Bs and an E in A levels. I got to where I wanted to go, which was the London School of Economics (LSE) to read Geography. That was my main interest at school actually, geography, and I was very pleased that I did that.

LF: Tell me a bit about your geography degree and what you subsequently decided to do career-wise.

JC: My geography degree was eclectic in that we had to do certain subjects in the first year but then in the second and third years I did a very broad spectrum of social and economic geography. I did a lot of courses, more courses than I strictly needed to because I've always been very interested in a wide spectrum of things generally. That went very well, so I got an upper second there in 1970, and I got a grant for a one-year MSc course, again at LSE, which I did. It was actually on planning, that's what I got the grant for, but in fact I switched to an MSc in geography again, which went reasonably well. Then, at the end of that year, I decided that I had two options: either to get a job at the then DoE, or alternatively to go into academic research. In fact, I did manage to get a job at the Department, but I then decided to go on to do a teacher training course specializing in Further Education. I did that down at Garnet College for a year, and then at the end of that year I managed to get a job doing research at what was then Kingston Polytechnic.

I went to Kingston Polytechnic in September 1972. I did two years of research on looking at urban expansion in southwest London, and then, during the course of the second year, a job was advertised at Kingston in the Department of Geography, mainly because somebody was moving on, and at that time people were just replaced. I managed to get that job and I had eight years of teaching geography and resource science. A resource science course was introduced as a new course at Kingston and that increasingly grabbed my interest. One of the students undertook an interesting project, for which he got a very good grade, dealing with the planning of waste management in Greater London. I decided that, what was missing from it was a consideration of the role of recycling. So I did a bit of research on that, produced a couple of publications and then, spookily, one evening when I was with some colleagues in a pub, who were in the Socialist Environment and Resources Association, and one of my colleagues

who happened to be working at the GLC said, 'You might be interested in this, Jeff,' and it was an internal job circular asking for applications for the role of Waste Recycling Coordinator.

On the basis of that I decided that I would apply for this job. The interview was one of the most appalling interviews I've ever had, in that the Chair of the interview panel asked not a single question, paid no attention to me whatsoever, it was left to the other two to ask the questions. One of those other two happened to be John Ferguson – my first meeting with John Ferguson. Anyway, as it turned out, and much to my surprise, I was actually offered the job and decided to take it, but being in an academic position, this meant a long transition because I'd missed the relevant deadline. I was offered the job in something like June 1982 but I only managed to negotiate an early exit from Kingston to start in December 1982. I had agreed that I would go into the GLC a couple of half days a week to acquaint myself with what was required, what was going on. I found also that my whole year lecturing was virtually compressed into two months, October and November, to allow me to exit, and for Kingston Polytechnic to benefit from my presence there so it was a bit of a fraught time, particularly because I immediately left Kingston with something like 500 essays that needed marking. So I found myself in a very responsible job but tightly constrained in terms of my time and activities once I'd actually taken it on.

Anyway, I was there in the GLC, and then after about a year my wife Stephanie got a job at the Inner London Education Authority. She'd previously been working at Hackney College so it meant that both of us were working at County Hall which was actually quite nice. Nevertheless, it was nice to be able to walk to work together and occasionally meet up for lunch and so on, although I have to say that Stephanie was quite often having lunch with my colleagues rather than with me because I was actually going elsewhere.

LF: I want to hear a little about that job.

JC: Well, it was a strange job in some ways. What I was doing was trying to re-engineer the waste disposal operations of the GLC towards encouraging more recycling. I was also supposed to work with the London boroughs. The London boroughs, some of them were obviously keen to work with the GLC, but there were a lot of political divisions, so Labour boroughs were very keen to work with the GLC but Conservative ones weren't.

LF: It sounds as if you're saying that their political allegiance overrode any commitment to sensible environmental factors. Is that right?

JC: Not necessarily. What happened was that there were various boroughs, which were very keen on recycling, and some of those were actually Conservative, and there were other boroughs that were less keen on recycling but prepared to work with the GLC in order to provide services. We ended up, therefore, with the London Borough of Richmond being the first borough to appoint a recycling officer about a year after I took up my appointment. I worked very closely with a chap called Peter Mansfield in the Borough of Richmond. He was obviously working for what was a Conservative administration, and I was working for the GLC, which was Labour controlled. We worked very closely together but there was the development of a collection scheme for glass, which meant that the GLC itself provided bottle banks in certain London boroughs, and those boroughs were predominantly, but not exclusively, Labour boroughs in the east of London. We had tried to provide a London-wide service but we started actually in the east of London. I was working internally within the GLC to ensure that at our civic amenity sites, as they were then called, there was provision for separation or segregation of waste. That was our main interface with the public. I was quite successful with that, and there were several people appointed specifically in the area offices, as we called them, in East London, South London and West London to ensure that that was done. We did develop a couple of other initiatives, including an education facility in the London Borough of Barnet, at Hendon, where we had a very large area, and we were trying to encourage groups of schoolchildren to go into this facility, but it never worked very well because there wasn't a huge amount of interest in recycling at that time, except by people like Friends of the Earth (FOE). I didn't actually do very much work with FOE because, being a member of Socialist Environment and Resources Association (SERA), at the time I was Chair of SERA, it was actually quite difficult for me, and, philosophically, I didn't agree with quite a lot of the things that they wanted, which included no development of energy recovery facilities through incineration. I thought that, although recycling was extremely important, we needed to deal with any other waste that could come through.

LF: Just say a little more about the ideological differences with FOE? What were they in favour of?

JC: FOE were very much in favour of things like reuse systems for beverage containers, hence the emblematic dumping of some single-trip glass bottles outside the headquarters of Schweppes, which I had some sympathy with, but actually if you look at it in environmental terms, it's only when you get a very high return rate for refillable containers that it makes economic and environmental sense to carry on doing that. Quite often, if you insist upon having a refillable container system, you can get yourself into all sorts of problems. For example, in Germany at the moment you have shops that are forced to stock a large number of refillable glass containers on their shelves because of regulatory requirements although the actual demand is very limited. I found myself in a situation where I thought, you've got to have some technological changes, new ways of packaging products through plastics and through composite containers, for example, which have their own environmental advantages.

One of the interesting things is, because of my position, and also because I set up the Local Authority Recycling Advisory Committee (LARAC) with the encouragement of my colleagues at GLC, I found myself going to lots of meetings and having quite considerable influence promulgating my views, which fortunately coincided with the views of most of my colleagues who were also dealing with recycling in other parts of the country. So it was a very good time, actually, but FOE in particular, they were against incineration. They were against incineration because they thought there were all sorts of problems associated with dioxins. Dioxins are an issue but as time has gone on, dioxins have been reduced as far as incineration is concerned. You get more dioxins coming out of exhaust pipes of cars and from other sources now so the contribution from incineration is very, very limited. Fortunately it seems that the public has now accepted that energy recovery through incineration is actually one of the ways in which we can better manage our waste. So, within the GLC I was developing these initiatives, we were working with the boroughs, and our success if you look at it from a point of view of the proportion of waste that was being recycled actually wasn't that great, but that was mainly because central government wasn't that interested in it and there wasn't really a mainstream move towards recycling. There wasn't separation-at-source like we find in households now, but you've got to start somewhere and I think we had a very considerable influence in terms of changing the attitudes in local authorities, and changing the attitudes of waste managers towards considering the development of recycling and separation of waste.

LF: I just want to explore that a bit with you, Jeff. You said earlier you did work with colleagues in other parts of the country. To what extent do you think the GLC was leading the way and which were the other advanced local authorities in this area?

JC: Certainly, I think the GLC was leading the way but there were other authorities that were very interested. The early LARAC influences included a chap called Geoff Wright who was based in Leeds, and there was Judith Pamphillion who was based in Lancashire – both, as it happens, Labour-controlled authorities. Then we had a number of people from both Conservative-controlled and Labour-controlled authorities in various parts of the country, but it was very patchy to begin with. As time went on, and certainly by the time that I'd left the GLC and started work with the LWRA, it was beginning to be accepted that you ought to have a recycling officer in your authority; whether that be at the upper tier, the waste disposal authority; or the lower tiers, the waste collection authorities. Recycling was beginning to become mainstream but that was after four years, and the GLC was abolished in 1986. My work continued with LARAC and various other organizations under the auspices, then, of the LWRA. It was the only London-wide authority that had any remit for waste, as the waste disposal operations were actually either on the basis of the statutory authorities of which there were four.

LF: Just tell me what those were?

JC: The North London Waste Authority, East London Waste Authority, West London Waste Authority, and the sort of odd one is the Western Riverside Waste Authority; so four statutory authorities, then four joint authorities and then some individual boroughs doing their own thing. Bexley, for example, initially did its own thing and worked very closely with Kent County Council. Nevertheless, there was still in existence a London Recycling Forum, which brought together representatives, not only officers but also politicians as well, to co-ordinate our activities as far as recycling is concerned, and to promote best practice wherever possible. So there was a higher degree of continuity in that the civic amenity sites placed more and more emphasis on separation of waste, and there were more facilities provided to householders for segregation of waste as well.

LF: Jeff, we've got you now at the LWRA, the GLC has been abolished, and we're in about 1986: tell me about your work now.

JC: My work with the LWRA started really where I'd left off at the GLC. In other words, what I was doing was encouraging the development of recycling through the London boroughs, through the Waste Disposal Authorities and so on. After a couple of years I was appointed as the Waste Planner for London because there was a requirement that a waste plan was produced and that responsibility was given to the LWRA. It was odd in some ways in that the LWRA didn't have any statutory responsibility for any form of waste operation apart from undertaking the collection of certain hazardous waste from households – a responsibility that was ultimately transferred to the City of London on behalf of most of the London boroughs who make a small financial contribution to that corporation. However, on the LWRA Board, we did have members from each of the London boroughs. Initially, and again this was in the context of the political perspectives, to start with we had a Conservative majority and hence the Chair of the LWRA came from the Conservative side, actually somebody from Bromley. Then subsequently, we had a dramatic change in terms of the political map of London and we ended up with a Labour majority, and hence the Chair then came from the Labour side and that was a representative from Hackney, so it was very much chalk and cheese.

My job was to steer this London Waste Plan through the political quagmire, and try to get what I thought was a good mix, between recycling, energy recovery, and landfill. Within recycling, I included composting so what we were doing was trying to get a balanced approach to waste management but it required the agreement of the various political parties. In particular, the most contentious issue, was the proposal for the further development of incineration capacity, going back to the plan that the GLC had first proposed when it was formed, which was for a ring of incinerators around London. What had happened was that in the period where the LWRA existed (1986–1996), and just prior to that, we had actually gone back to considering that incineration with energy recovery ought to be our preferred option, rather than the interim solution, which was taking waste out by long-distance train transport to outlying landfill sites, including to Oxfordshire, Buckinghamshire and Bedfordshire. We proposed the development of a large incinerator in Bexley, and the reason was that the site was available and most of the waste would be delivered via the river system. Ultimately, it was 15 years later we actually managed to achieve that. I say we managed to achieve that, I mean it was thanks again to political agreements that that particular facility did get developed.

In the meantime we'd had the building of the so-called South East London Combined Heat and Power plant, which was a misnomer because it was only producing electricity to begin with. It's only in the last year that it's actually produced some district heating. My job, therefore, was to get this London Plan through, which I managed to do in 1996, a few weeks before the LWRA itself was abolished, in favour of a national EA. This was something that the Conservatives had fought against at central government level for a long period of time, but ultimately John Major had decided that it was a good idea and had announced it as one of his bright ideas, and away we went. It was basically a takeover by the National Rivers Authority (NRA) of the Waste Regulation Authority functions that were operated at a county level normally, and the LWRA was the largest by far of any of these Waste Regulation Authorities that we had in the country.

LF: What do you think was the political driver behind that?

JC: It was a recognition that although there had been, as a result of earlier initiatives, a split between the operational aspects of waste disposal and the regulatory aspects – in fact they were so close together, working often in the same room – that there was often the concern that if you didn't have an actual functional split that regulatory function could be compromised by operational necessities. The model we had for London showed very clearly that it was good to have this separation because there were instances where things had occurred with particular waste treatment facilities, both composting facilities and even the Edmonton Incineration Plant, where you had to step in and stop the practices that were going on there. That was, I think, the logic that persuaded the Government to have a national body looking after waste regulation rather than very small, local bodies.

LF: Tell me more about the practices at the Edmonton plant?

JC: The practices at the Edmonton plant included things like the operation of a composting facility that had gone anaerobic, and for a long time there was a major dispute as to whether the smell that was emanating was actually from the sewerage treatment facilities operated by Thames Water, or whether it was actually this composting facility, but ultimately it was pinned on the composting facility. They'd had an operational problem in that their compost turner had broken down, and instead of doing something in terms of hiring in equipment or getting a front loader shovel to turn the waste, it had just been left to sit there, and had then gone anaerobic and smelt pretty awful. So there

was that kind of thing, plus some problems associated with taking in wastes that were thought to be inappropriate in regulatory terms, i.e. some waste that had come in from Germany, where, in fact, they were being burnt at Edmonton because it was cheaper to send them all the way across from Germany and burn them here, rather than get the incineration facilities in Germany to deal with them. It was those kinds of issues that we had which the LWRA was able to step in and control.

We then moved towards having this national body, and it was effectively a takeover by the NRA so we ended up with a head office that was based in Bristol, although, interestingly, the London head office was actually the former LWRA buildings at Hampton House on Embankment, where you got an excellent view of the Houses of Parliament across the river. The unfortunate thing was that many of the senior staff at the LWRA retired, or all retired soon after so we ended up with very few people who actually worked at the head office. I was working there, but only by accident in that I was dealing with a strange aspect of waste management that nobody else had the expertise to deal with within the part of the DoE that actually went into the EA – there were 16 people who came from what was called the Waste Technical Division that went into the EA. I was somebody from the LWRA but I still ended up in head office because I was dealing with extended producer responsibility, something that I became interested in when I attended some workshops at the OECD, the Organization for Economic Cooperation and Development, and at the European Commission. So I had a background in that, and at that time there was discussion about the introduction of regulations covering packaging, and although extended producer responsibility was not part of the European Directive, I had had a lot of experience with regard to packaging-related issues, which nobody else had done. So I found myself dealing with that issue on behalf of the EA and continued to do so with a number of other extended producer responsibility regimes, which followed on from packaging. These included things like waste electrical and electronic equipment, end of life vehicles, and batteries. We'd also had some discussion when I was at the EA in my last years there about having extended producer responsibility for plastic films from agriculture as well, but that was never introduced. We only ever introduced the ones that we were required to by the EU.

There were still obviously a high degree of recycling-related initiatives associated with all of those Directives, so, as far as my career in waste is concerned, it's really been to do with recycling, which is very unusual. I came into this industry

promoting recycling, and I actually left it promoting recycling, but now I find myself in a situation where most of the work that I do, apart from a heck of a lot of voluntary work, and of course my work in journalism, I'm actually dealing with renewable energy from waste. So, if you like, I've gone back a step but I don't regard it as really going back a step, I regard it as an appropriate solution to dealing with the residual waste and actually better than incineration: we're actually turning it into a range of fuels that can be substituted for fossil fuels.

LF: Let's take you on a bit in your career. Just to anchor this, which year did you move from the LWRA?

JC: I went from the LWRA into the EA in 1996 when the Waste Regulation Authorities were subsumed into it.

LF: And what were you officially called when you went to the EA? What was your job title?

JC: Well, it's really difficult to know what my job title was, actually, because I immediately started working on a project to set up the regulatory framework for the administration of the packaging waste regulations under the packaging waste Directive. It meant, therefore, that I was working under the manager for the south-western region of the EA, who happened to be a woman, the only woman regional manager. She was very good. So I was working under her, but working on this project, which was a head office project to establish the regulatory and administrative requirements, as far as the Agency was concerned, to deal with the issue of extended producer responsibility. Because the legislation that was set up, the Agency had recognized that this packaging Directive was in the wings, and would need to be implemented by the British Government, so responsibility was given to the EA to do the regulatory work. Also, the Scottish Environment Protection Agency, and the Northern Ireland DoE as well, that's how it was split. We looked after England and Wales, because it was the EA for England and Wales, a separate agency for Scotland under that same piece of legislation that set us up, and then there was Northern Ireland, which has always been a bit of a strange beast in terms of its political setup.

LF: Now I know during this time, and subsequently, you've done a lot of international work and you've also been involved heavily with the professional bodies.

JC: One of the things that I did when I was working at the LWRA, I was asked by the CIWM to act as their representative for the Recycling Working Group of the ISWA. I attended the inaugural meeting in Berlin in 1989, which was quite an exciting time because the Berlin Wall had just been demolished, so I was there at that time and actually went along to see the remains of the Wall, and was being offered chunks of concrete for several Deutschmarks. Actually, I got one very small piece of concrete for free because there was masses of it obviously lying about. That was in the summer of 1989, and there were about six people there from different countries. The Chair of that Committee had already been decided on, a chap called Niels Jørn Hahn from Denmark, and then there were several other Scandinavian representatives, a Spanish representative and a UK representative. When it came to deciding who should be the Vice-Chair of this particular Group, the Spaniard didn't want to take it on, and it was felt inappropriate that there should be another Scandinavian representative, so I ended up being the Vice-Chair. From that, I then progressed within the ISWA, with the support of the CIWM, so I became the Chair of that Working Group in the 1990s but only comparatively briefly, because in the year 2000 I was asked to take on the responsibility of being the Chair of the Scientific and Technical Committee. So in the year 2000, which actually was quite momentous in the context of where we are now, France was hosting the World Cup and we were over there for the ISWA congress, a nice coincidence for anybody who happened to have tickets.

LF: And were you one of those people?

JC: No, unfortunately not, but nevertheless my interest in football is actually quite limited. I was appointed as the Chair of the Scientific and Technical Committee, and I fulfilled that function for eight years. Then, in 2008, at the ISWA congress in Singapore, I was appointed as the Vice President of the ISWA, and became President in 2010 at the congress in Hamburg, and I finally relinquished my presidency at the congress in Florence in 2012. In the meantime, as President, of course, I'd attended lots of functions and gone to lots of places in order to promote both the ISWA and better practice in waste management. But, if we step back to 2007, I became the President of the CIWM; that was a great honour and I thoroughly enjoyed the opportunities that I had during that year, between 2007 and 2008, as President of the CIWM.

LF: What do you think the role, both the internationally and nationally enabled you to achieve? Clearly it's a great honour and a tribute to all the work you've done. What do you think you were able to achieve specifically in those roles?

JC: Well, helping bring about a unifying feature of the industry, and making it much more international as well. That, I think, is something that has continued after I finished as President. There's always a constant split between the people within the CIWM who say, 'Ah, well, we shouldn't be supporting the ISWA to the extent that we do because what's the advantage for our members?', but actually there's a huge advantage for the members because they benefit from the knowledge and expertise of their colleagues in other parts of the world, and quite often there are a lot of links that have been established between the active members of the ISWA working in the UK with colleagues abroad so we have a very active and very vibrant British Isles Committee because Ireland is a member of the CIWM and hence they are linked into the ISWA as the CIWM is the national member for ISWA.

There's a huge amount of networking and linkage that occurs, I think to mutual benefit. We've always had a good presence of UK people on the Board and the Scientific and Technical Committee of ISWA. It's again a mark of the respect and influence that the Brits have despite the fact that we may not be as advanced as some other countries in terms of getting rid of landfill as some of those countries have done.

LF: Which are the other leading countries?

JC: Well, it depends where you want to place your emphasis. As far as the regulation and administration of waste is concerned there's a lot of influence that the Germans have, particularly on EU policy. As far as the best countries are concerned, I think you've got to look to, say, the Netherlands and Sweden; for me, it's always good to have an opportunity of discussing the issues with colleagues from those countries. In particular, I've organized several visits to London for colleagues from overseas, particularly Swedish colleagues, perhaps coincident with football matches, but nevertheless they're very keen to see our new, very large, incineration plant, the one that's just outside of London at Colnbrook near Heathrow, and the Belvedere incinerator, in particular, partly because both those plants are incredibly efficient and they're very large as well, which is in contrast to the size of facilities that you get in Sweden itself.

LF: Sweden and the Netherlands are ahead of the game, ahead of many other countries. Are there any issues around density of population?

JC: One of the major problems that we face is that at a local level if you look at densely populated areas, there's an absence of waste management facilities. There's also a problem in both fitting in collection facilities for segregated waste,

and also, quite often, education. Inner city areas tend to have a much more transient population, but there is a trend now to having incineration plants that are located outside of the main urban centres. If you look at it from the point of view of renewable energy supplies, what we ought to be doing is making sure that we have our energy recovery facilities from waste located very firmly in the centre of towns. Now, as it happens, one of the first things that I was interested in was converting Battersea Power Station to be a large incineration facility for London, and frankly I still think it would have been a better option than leaving it derelict for 30 years, and then deciding that it was going to be used for housing. I still don't know what the main old plant is going to be used for, but it's probably going to be some sort of theme park. The fact that it's been left there for so long means that it's going to take a lot of work and effort to remedy the defects that it's now got. Irrespective of that, if you think about things like solar energy, wind power, and so on, you can get a certain amount of solar energy from buildings in the centre, wind power very unlikely because you can have a few aero-generators on tops of buildings, but nothing substantial. If you want both heat and electricity from renewable resources, it's probably best to locate your incineration plant at the centre of densely populated areas.

At a national level, if you look at this issue of population density, the Netherlands is very densely populated comparable to certain parts of England. There are bits of Sweden that are densely populated, but we're only talking about three main cities, basically Copenhagen, Malmo, and, Gothenburg.

LF: Copenhagen? It's not in Sweden.

JC: Not in Sweden, no. But very closely linked to Sweden so that a huge number of people who live in Sweden actually go across to Copenhagen to work every day. Indeed the new Chair of the ISWA Working Group on waste minimization and recycling works for the city of Copenhagen but actually is a Swede, but then he's married a Dane and they now live in Copenhagen.

LF: Just take me to the point in your career that you are at now, because you would have retired formally not too long ago?

JC: I think people in waste tend not to retire, so where I am now is acting as an overseas correspondent for Letsrecycle.com, which is an online newsletter, so I do a lot of reports for them whenever I go overseas. I am the editor of the *Waste and Resource Management* journal for the Institution of Civil Engineers, that's a voluntary activity. I'm the contributing editor to *Croner's Environment Magazine*, which I've done now for over 20 years, and I'm still active there.

I do articles for CIWM and for the ISWA so I'm still active as far as doing a lot of writing, reviewing papers that come from those sources as well. But my main activity is to try to find the feedstock for this proposed facility that will be based in Thurrock, in the old Coryton oil refinery plant: the British Airways Solena Fuels jet fuel facility. That's a combination of new technology, plasma arc gasification to produce predominantly carbon monoxide and hydrogen, and then to recombine those gases to produce three fuels by means of the Fischer–Tropsch process. That was the process that effectively kept the Luftwaffe flying in the Second World War, it turned coal or lignite into a liquid fuel via gasification. What we're doing is using waste as the feedstock, using a new technology, and then recombining the gases to produce these three fuels, jet fuel, which is basically a substitute for kerosene; biodiesel, which can be used by road vehicles; and bio-naphtha, which can be used as an ingredient in petrol. So it's a very exciting project, and provided that we can get all the pieces together, including the finance, and the final permitting of the site, we should be operational in 2017 and feeding a lot of the residual waste from the London area into that facility to make productive use of that residual waste – waste that is left over after you've done the maximum amount of recycling that you can do. Of course, one of the problems is trying, to educate people, particularly in inner London to separate their waste and to place it in the correct receptacles – it's a difficult job.

It's a very exciting project. I'm really pleased to be associated with that because it keeps me in touch with a very advanced area of waste management. Therefore I'm still actively involved with waste management issues in addition to the range of things I do for the CIWM because I'm still on various working groups and committees there. And the ISWA, I'm a member of the Globalisation of Waste Management task force, which is looking at a number of different aspects of waste management that have got global significance, including the informal sector, the rag pickers, etc., from their contribution to waste management in developing economies. I'm looking very specifically at paper and what might happen with regard to the global movement of recovered paper, particularly because it's now increasingly going to Southeast Asia to be utilized there. Also, I'm a member of the ISWA European Group, which holds these meetings in Brussels about once a year when we have representatives of the European Commission come along and other invited speakers, plus our own workshop sessions.

LF: When did you formally leave the EA?

JC: I left the EA in 2009. I had the opportunity of retiring at the age of 60, and I thought that there was going to be a lot of further opportunities which I think there have been for doing other things, and I've done some other paid work in the meantime including advising and setting up a new waste electrical and electronic equipment facility.

LF: Let me just ask you to reflect briefly on what's been a long and incredibly productive, highly achieving career. What have been the best times, what have been the worst times?

JC: As far as the best times are concerned, I think they have been those early days of the GLC when there was a lot of scope to make some changes to invest in new facilities and so on. The unfortunate thing was that we didn't achieve a huge amount initially, but I think it was changing the culture of waste management in London and then subsequently in the rest of the country to looking at the recovery of materials rather than its disposal; so for me that was very good. The worst time was very definitely the early days of the EA where, certainly, waste regulation was regarded as the poor cousins to our colleagues in water management. And we ended up, I think, not having particularly good prospects. A lot of my colleagues actually left because they felt that they were fighting an uphill struggle. Fortunately, because I had that particular project under my auspices, I didn't feel quite so disenchanted but I could understand their frustration that they weren't being given the kind of responsibilities they felt they ought to have had.

LF: What are the major challenges ahead and how do you think the world will look?

JC: I think the major challenge that we've got in front of us is how we manage to reconcile the various responsibilities that have been placed on us as waste managers. In many ways we still need, at an international level, to focus on health and environmental protection. All too often these days, some of the more naive activists that you've got in developing and transition economies are forgetting that you need to deal with those issues before you can deal with the other issue that's now coming through, which is this idea of the circular economy; whereby what was once regarded as waste are now regarded as resources to be reutilized.

Unfortunately, there is the assumption that everything that's generated as waste can be returned to the production cycle. Yes, a very large proportion can be. However, there is always going to be some material that has to go through an energy process, and there's still going to be some material that will have to

go into landfill. We're still going to have to have, probably, strategic landfills, maybe just very few of those, in every region. Hopefully in 50 years we will have realized the maximum potential from our waste, and do it in a sensible way, but we're very far from that, even in most European countries, although I will accept that there are some countries that are now actually quite close. Even those countries recognize that they could be doing things slightly better. The emphasis that we've got on energy recovery in Denmark, the city of Copenhagen is now trying to take out much more plastic waste, which previously has been burnt, and they've recognized that their statistics are also complete crap and they've changed the basis for their statistical assessment of how much they are recycling, and they've actually downgraded that. They're not doing anything less, they've just recognized that the statistical basis that they were working on was completely wrong, and that gives a false impression so when people are looking in this country for good examples, quite often you'll see Denmark being quoted because they've got this high recycling rate, but it's a high recycling rate based upon false premises. It's not the household recycling rate that they're looking at, it's the overall recycling within the economy and that's been exaggerated recently. It's now coming back to a much more realistic figure. So, for me again, that's another lesson for everybody that we should be measuring things on a comparable basis, and at the moment we're not actually doing that.

LF: So, if you could give a message to the citizens of this country and in particular London, where I understand the population is expected to reach ten million by 2031, what would that message be?

JC: Well, my message to the population of London for the future would be 'please make sure that wherever you have the opportunity of segregating your waste and passing it back through a recycling system, please take advantage of that. But make absolutely certain that what you're segregating is appropriate because there are confusing messages,' and this is one of the problems that we have in London, that on a borough by borough basis, there are these variations as to what people are expected to separate and recycle.

LF: It sounds as if you're saying there needs to be better communication from local authorities.

JC: Communication is incredibly important, and I have to say that one of the dangers that we now have as budgets are being squeezed is that the budget that is most likely to go first is this communication and promotion budget. It's still essential that we need to provide that, and look at that aspect very closely.

LF: Jeff, thank you. Thank you very much. That's been absolutely fantastic.

JC: Well thank you, Lynda. It's been really nice.

Figure 3: Mr Barry Dennis

Mr Barry Dennis (b. 1946) worked in the Deards waste management group from 1964, and progressed to the Board of the company. He is former Director General of the Environmental Services Association (ESA; retired 2014), and is a Trustee/Director, and past President of the CIWM. He is also a Director/ Trustee of the Waste Management Training and Advisory Board.

3 Dennis, Barry*

Lynda Finn: Can you start, please, Barry with details of when and where you were born and of your early life?

Barry Dennis: I was born in Finchley, North London, on 1st March 1946. For the first five or six years I lived in Finchley, which was opposite the family business. Then we moved to Totteridge in South Hertfordshire, where I lived until I married. I went to Highgate School, which is a public school in North London, where I was a day boy up until the age of 11, and then from 11 until 18 I was a full boarder.

LF: What were you favourite subjects?

BD: Sport has played far too big a part in my life and my family's life right the way through many generations. My favourite subjects in those days were, without a doubt, geography and maths. I really enjoyed those. I wasn't particularly academic, I couldn't wait to get out onto the games field and probably suffered academically in exams through not paying attention. If I had paid attention at school the way I now pay attention in business meetings with Ministers, Secretaries of State, people from Europe, when you listen to every word that's said in those meetings because you have to, if I'd done that when I was at school I'm sure I would have attained A levels.

But mainly it was sport. We played some football and cricket and that took up pretty well all our time, to be honest. I was never a great reader of books. We went on holiday once a year, normally to Cornwall and then in later stages abroad. And so during spare time, holidays, it was football and cricket and, you know, being with friends, doing those sorts of things

LF: I want to come onto what you did when you left school, but before that tell me a bit about your father's business, and your involvement in it as a youngster.

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* Edited passages from the interview conducted by Ms Lynda Finn, for the History of Modern Biomedicine Research Group, 30 May 2014, at the ESA. For more details, see 'Related resources' at the end of this volume.

BD: As a youngster, well the key to it was transport. Transporting materials all over London and the country, long distance haulage, and also waste management where we had a number of contracts with the Port of London Authority (PLA) clearing all the waste from the London docks when the ships went in and out. That went way back to the 1940s and we also did work with local authorities, clearing the household waste with the Grand Union Canal Company, going back well before 1930s. As a youngster I used to go across to the yard with the night watchman, helping to muck out the horses and feeding them at weekends because it was fun, and riding them round the yard. Frankly we shouldn't have gone across to the yard. We climbed over the fence at the back, just being naughty kids and then the night watchman saw us and started chatting. He knew who we were. And he said, 'Well, come and make yourselves useful.' So that's how we started mixing the feed for the horses and mucking them out and things like that. We weren't allowed there during the week, obviously, or during school holidays but at weekends we would go over there mainly to feed the horses and that would be in the late 1940s, early 1950s. My older brother who died only recently would be there as well. He and I were at the same school. It wasn't until I left school that I actually got involved with the business properly.

LF: How far back did the family business go?

BD: To a previous generation before my father. There were three separate families who owned that business and it started in the late 1800s. And then my father in Hertfordshire came to London because he found that he had aggregates in his farmland, which were dug up for obvious reasons and then he had holes in the ground so he came to London collecting rubbish to fill in the holes and that would have been the early landfills.

LF: Did your grandparents work in the business?

BD: They didn't work in the business, funnily enough. My grandfather had a car bodybuilding business in Kentish Town, which was, I suppose panel beating. And he would make racing car bodies for Colin Chapman, way back, which were all made out by hand in those days.

LF: So it was really your father who ran the business?

BD: Yes.

LF: Let's come on to you starting in the business.

BD: When I left school in 1964, I started off in what we called our Maintenance and Purchasing Department, because in that department you got involved in all the various sections of the business. So you got a grounding. If anything we were given any rotten job as the sons of one of the owners, and each of the other owners had a son in the business as well; one older than me, one much younger. And any rotten job, you can guarantee we got. We were not mollycoddled. Everybody else had a company car, we didn't. We were kept under a very strict rein, and I got involved in that Purchasing Department, and I then went and spent about a year working with the company accountant to understand some of the business management there, and then got involved in the waste management side of the business. My brother worked in our contract hire side and then ran our builders' merchants, and the other son ran our storage / commercial / domestic removal business, and our long-distance business.

LF: I haven't asked you for the name of the business.

BD: It was Robert Deards Ltd.

LF: Tell me about some of the other arms of the business in which you worked.

BD: Purchasing, because they were involved with the vehicles of all the departments and obviously we were then buying all the vehicles, the tyres, spare parts. We had our own workshop of fitters, mechanics, we repaired our own vehicles, and we had over 450 lorries on the road. So that was the grounding, if you like, because you got a good overview of everything that went on in all the different departments.

LF: When did you then move into the waste management side?

BD: I started in 1964, and I got involved in the waste management business in, I think 1967/68. Somebody was away sick on long-term illness, and there was a void in what we called a B section, which was the waste and aggregate business with tippers and rubbish clearance. You just went in there and reported to the manager, Harry Hutchins, and got on and did as you were told. We worked from seven o'clock in the morning, and we were in the business until seven or eight o'clock at night, because you couldn't go home until the last lorries came in.

LF: Tell me about a typical day.

BD: Getting in at seven a.m., seeing the lorries out, then giving the men their worksheets and their timesheets, and then orders would come in, you would pass those across to the drivers. Eventually we put radio telephones in the cabs so you could pass instructions across but basically the lorry left the yard in the morning. Once they had all gone, you were then basically doing the paperwork from the previous day, booking it up so it could be invoiced to your customers and doing the general admin, taking orders for the next day and all that sort of thing. It was a fairly full day and you couldn't go home until all the lorries were back.

Interestingly enough, we did have one contract with the Ministry of Defence, which was at the Mill Hill barracks where we had a horse and cart there until 1973, believe it or not! That contract was a rolling contract with a year's notice and it wasn't until the gentleman in the Ministry of Defence who had dealt with that contract for many, many years, died and a new person took on the job and he saw an invoice for the first time saying, and this was in 1973 'Hire of a horse, cart and cart man for the month of "X" for "X" pounds,' and he rang up and thought we were having a joke. I said to him, 'Well, look at the contract number on the top of the invoice, go and get the file, and then give me a ring back if you've got any queries.' And he rang back about ten days later and said, 'I've got the file, you're absolutely right. I've spoken to the officer in command down there and he said your man's there every day, he does a brilliant job, they're all very pleased with him,' he said, 'but we're going to have to give you notice.' They gave us a year's notice and I went to see Joe, the cart man, and he was probably in his mid-seventies by then and he worked his last year and then the horse went into a rest home for horses in Borehamwood. Joe used to visit it two or three times a week, and Joe died within four months of the end of the contract and the horse died shortly after him. We're all convinced that, you know, they had been together for so, so many years on a daily basis, one couldn't live without the other. That was in 1973. And I'm convinced if that guy who was signing our invoices at the Ministry of Defence hadn't died, they'd still be there today.

LF: So you were a young man, you were in your twenties, managing a team of people?

BD: We started the skips in the mid-1960s, more or less when I first started work. Skips were a new part of our business, and for the industry as a whole. I persuaded my father and his colleagues that we needed to get into that side of the business because other competitors were, Biffa, Drinkwater Sabey, Grundon,

Hales, etc. – all family businesses. I persuaded them, and put a plan together about how this would work and we went and bought our first skip lorry and within two years we had over 18 on the road as well as our other container and tipper lorries. In that department, in the waste department, we probably had 80 or 90 lorries on the road at that time. I managed the skip department, I had a team of three or four people working with me. Then, shortly after that, 1969/1970, I started to manage the whole of that subsidiary company.

We had a big contract with the PLA and the London docks, where we had what was known as the scavenging contract. We were responsible for keeping the docks open, i.e. keeping the roads clear, of snow, waste, anything. As ships came in and out they would have what was known as dunnage, which would be bits of cargo that had got damaged on the journey, or just if they cleaned the ship out. We had containers all over the London docks and in the Tilbury docks, and that contract went way back before the Second World War to the 1930s. We built two incinerators down in the London docks in the late 1920s, early 1930s, if I remember correctly from what I was told. All the waste arising from within the customs wall of the PLA from Tower Bridge to Tilbury had to be cleared under our contract. Other waste companies couldn't come into the docks to clear any rubbish arising. And as the docks started to diminish, the PLA started to let buildings for other small industrial units, etc. and even for those businesses, we had to clear the rubbish.

Most of it was burnt in the two incinerators and what couldn't be, went out to landfill. That's the way the business ran. In the mid-1970s I went down to the docks to run that contract because our dock manager retired, and would go up to our other depot in South Mimms in Hertfordshire where all our waste lorries were. So I was split between the two. We would burn all sorts of things, sometimes under Customs' supervision, it could be food waste or anything, shirts from Taiwan, or whatever. And when the Customs and Excise went in to levy the duty on it sometimes the importer would say, 'Well, I'm not paying that.' And it was cheaper to dispose of the goods rather than send them back because the Customs and Excise wouldn't allow them to go onto the market, so they had to be destroyed. It wasn't a regular occurrence but it certainly happened quite a few times. We had Hong Kong duck eggs that came in, massive great jars and these were duck eggs wrapped in mud and straw. The Port Health Authority wouldn't allow them to go onto the market so they had to be destroyed, for example, and that was for health issues. We had two barge loads of corned beef from Argentina because they'd been unloaded from the

ship in the river, not in the docks, and they'd been put into a barge. The barges were tied up too tight and when the tide came in the barges got flooded, and the health authorities condemned the corned beef. So we had to burn that and it took us about six months to burn a shipload of corn beef. They went into the fires and the tins would burst in the heat so the meat was destroyed, the tins were left in the ashes, which then eventually went to landfill. I could talk for weeks on some of the issues that went on down there.

LF: Whereabouts were the incinerators?

BD: That's interesting, because the two incinerators, one was in the south side of Millwall dock on the Isle of Dogs, and if you go down there today, the chimney of that incinerator is standing in the gardens – I've been trying to get a blue plaque on it to say what it was. The other incinerator was down in the Royal Albert basin near the entrance from the river into the Royal Albert docks and the King George V docks and Victoria docks, and that was right at the beginning of what is now the runway for the City Airport. I knew the runway as the Central Road between the Royal Albert and King George V docks. It had offices on, warehouses where cargo would be loaded onto the ships or vice versa, and there were times when you couldn't walk down that road, or cycle, there was so much activity of loading and unloading, and cranes and everything.

LF: Were the incinerators there before Deards?

BD: No, my father built them, I think in the 1930s, certainly before the Second World War.

LF: And so they'd always been used for London-based waste material from the docks?

BD: My father had written into the contract with the PLA that our vehicles could come into those incinerators with waste from outside the docks and that gave us a big commercial advantage because we had a very close disposal point whereas other contractors in the City of London had to take their waste to either North London, South London or out to Essex, whereas we had a place in the centre of London. So that did give us a tremendous advantage.

LF: Tell me a little more about the strange incinerations you had to do.

BD: We didn't always know why we had to do it, we would get a call from Customs and Excise to say, for example 'We have a container load of cigarettes' which could be contraband or could have some other problem, and we would

have to dispose of them. Tobacco was quite a regular one, and some lighters which were dangerous. They were condemned because when you tried to flick them on, those little see-through things, you couldn't. There was a mini explosion so they said, 'Right, the lot have got to be destroyed.' They were fun because it was a bit like burning fireworks. What else did we have? We tipped up one load one day from one of our container vehicles, and four or five very tiny kittens came out of the load. Very sadly they were tipped out and they just ran straight into the fire. One we saved and lived to a good, ripe old age, a beautiful cat that we saved – it would have drowned in a glass of water it was that small.

We had to sweep the crane lines, the cranes were on railway tracks but they were sunk into the ground, and we had to sweep those so there was no wood or stones that would foul up the cranes moving up and down the docks, and we had driftwood in the docks, which was our responsibility to clear. The way we did that in those days, we had a crane mounted on a lorry chassis, and on the end of the crane was a basket and the chap stood in the basket with waders on. And he was lowered into the river, into the dock, with a giant rake, and he would rake all the driftwood into the basket. We would then lift him out into a tipper, which would follow the crane. He would put the wood into the tipper and then go back into the dock and rake everything in which was floating on the water. That was how we cleared all the flotsam floating in the dock. Health and safety would never allow us to do it that way now. They would have a boat going along or something picking it all up, but the guys were happy to do it.

LF: You will have seen numerous changes? When did that stop?

BD: Would it have been the mid-80s when the docks started to close? There was a major issue with the unions down there, when you had to have three or four people looking after a forklift when probably only one was necessary. And a job in the docks in those days was a job for life. Eventually, without wanting to be political in any way they priced themselves out of the market and in my personal view, the dockers never saw that eventually the money would run out. The Thatcher Government during the 1970s started to close the docks down. The Surrey docks were closed long before that and filled in, in the 1960s.

LF: And the Thatcher Government came in in 1979, didn't it?

BD: Yes, 1979. The Millwall docks closed next and then the Royal Docks closed later in the mid-1980s. So our contract slowly ceased and diminished when the docks closed and it was taken over by the, London Docklands Development Corporation, who then developed Docklands as it is today.

LF: Your term there began, or changed, really as the docks wound down?

BD: Yes. The docks wound down, so that contract ended our skip business. And then the three families involved in the Deards group decided that we would demerge the company, so each of those three families took away certain parts of the business and we split it up. My brother and I took away the builders' merchants business which he had been running for a number of years, and some of the waste management contracts, for example the contracts with Lords cricket ground and the Oval cricket ground. We cleared all the waste from there for many, many years. It's an interesting story as to how we did that. Some other waste management contracts I kept, and then one of the other families took away property and the rest was all split up. We're still in touch with one of the other founders because obviously we've known each other all our lives.

LF: And did you retain the name Deards?

BD: No, Deards is still there but only one of the companies has retained that name and that was one company, and then our own company traded under, the builders' merchants, traded under the name of Gus Davies Ltd.

LF: And the waste management contract?

BD: Yes, we did it all under Gus Davies Ltd which was a builders' merchants but I continued doing the waste management to work under that banner. And then in 1992 I had a call from Richard Biffa who I'd known all my life, we'd all grown up together, asking me if I would join the Trade Association, which is now called the Environmental Services Association (ESA) – it was called the National Association of Waste Disposal Contractors back then – to come and work there, he said there was a job that needed to be done for a year or two, and I've been here at the ESA for 21 years. So I spent 30 years in the family business and then the last 21 years here at the trade body.

LF: I just want to take you back to the period between the docks closing and you joining the ESA. Tell me a bit about what you did when you worked for what became Gus Davies.

BD: Well, my brother was the expert in builders' merchants, selling sand, cement, and plumbing units. We had a bathroom showroom in Abbey Road, St John's Wood, and that's where our offices were. And we also had quite a bit of freehold in central London: Camden Town, St John's Wood, and Kentish Town. My wife worked in the property business so I had a lot of contacts in the property business and it became very apparent that property was worth

more than selling sand and cement from a piece of prime real estate in Camden Town. So I went away and spent some time exploring the development of those freehold properties we had, which I did, and got planning consent and then we sold them. My brother kept all the properties at St John's Wood, running the builders' merchants.

LF: You mentioned earlier dealing with Lord's and the Oval.

BD: We had contracts there to clear all the waste from Lords cricket ground and the Oval. My brother and I both played cricket at Lord's and the Oval many times. We were serious Marylebone Cricket Club cricketers and club cricketers, and we got involved at Lords, both supplying all their maintenance stuff and doing the cleaning. In those days, cleaning the ground after a major match when you had 26,000 people in there, they would hire in winos on a regular basis to come in and give them a broom, paid them cash in hand. They obviously had it all cleared with Inland Revenue, there's no issues there. Our responsibility, once they had swept the ground, we then collected it and put it in containers and took it away. I would be there on major match days, at a test match or a one-day final or something. I would be there at five o'clock in the morning and sometimes I stayed to watch a bit of cricket, I must admit, but then when the game had finished, we would be clearing the ground until nine, ten or 11 o'clock at night. We would make sure that we had facilities to take the loaded containers away because you couldn't empty them, you had no disposal points in the middle of the night, though you could do it now. It's a 24/7 job now, but in those days it wasn't. Then there were empty containers ready for the start of the game the next day because obviously rubbish was being cleared during the day but in a small way, because obviously with the crowds in the ground you couldn't sweep and clear up but you could empty certain bins. So that was great fun, I mean, test matches and five-day games like that were, basically you were at it for five days, 24-hours a day. We did more or less the same at the Oval, supplying all the equipment, clearing all the waste and the bins and put a new system into the Oval of compactors, which we eventually did at Lord's as well.

LF: Where did you take the waste?

BD: The waste in those days used to go from Lord's out to landfill in Hertfordshire. All the waste then would go there. Rarely did we send it down to the docks because to get from St John's Wood to East London, it was quicker to take them out to Hertfordshire – we very often had the waste stored at our depot in North London to take it north to the pits in south Hertfordshire was

where all the waste went. The industry was very much landfill-based, it was cheap and it was efficient. As I've always said, when God made the UK, he had his landfill hat on with the geology of the clays and underlying clays, which are ideal for landfill, whereas when he built the Netherlands and the Benelux countries he was thinking of other things. But in the UK our geology is well suited to landfill and the methods of landfill changed over the years because we had what we called a disperse-and-dilute system, so the waste was put in the holes and, gently, leachate would disperse and you had methods of collecting that. Then, eventually, it probably started in the 1960s, maybe before, landfill would have an artificial lining put in it, and gas collection to collect the methane gas.

You have to remember that the waste that was being disposed of was of a different nature to the waste we have today. It's like household waste. Years ago, household waste was basically coal clinkers. There was very little food waste in the waste collected from houses, or whatever, and industrial waste again was not made up of the same materials as it is today. Now it's far more complex and that's why technologies have had to change within our industry to deal with it. But in those early days, certainly when I started in the early 1960s, nearly everything went to a landfill. Recycling was going on but not in the same was as it is today. We had drivers who were recycling and saving copper wire and taking it to the scrap man, and Steptoe and Son were recyclers but we never saw them as recyclers, you saw them as the rag and bone men. What has happened is that now recycling has risen up our agenda, and up the 'waste hierarchy' as it's known, and is right at the very top just below prevention.

As the composition of the waste from factories, households, everything started to change, that's when the industry started to put its thinking cap on in how to deal with that waste. That's when all these different technologies started to build what we call material recycling facilities, a Materials Recovery Facility (MRF), where the waste is put in and the plastics and the aluminium and the metals are all taken out by various means, highly sophisticated pieces of machinery. The key to the industry nowadays is extracting the value, and a lot of people will say that we're not a waste management industry anymore, we're a resource management industry. The problem is the media and the public don't understand resource management, they understand waste management, so the name still lingers on. But hopefully that will change. It's a bit like landfill, we didn't call them landfills when I started in the early 1960s; they were called tips and chutes. The word 'landfill' came in and now we 'land reclamation site' because these sites are

being used for sports fields, farmland, whatever. Certainly all the landfills that I used, and my grandfathers and my father used, are perfectly safe now. They're near housing estates, they're farmland, they're playing fields, whatever – rarely built on, I have to say, rarely built on.

LF: To what extent do you think changes were driven by technological advances and changes in materials, and to what extent by pressure groups?

BD: The big change came in the early 1990s when Landfill Tax came in. Landfill Tax came in. Landfill Tax didn't come in as an environmental tax, it came in as a fiscal tax. The Treasury needed money and this was a way of collecting it. It's turned into a very good environmental tax. It started off at £7 a ton for what we call basic waste material, and inert waste materials, clay and bricks, were £2 a ton. A very small differential ,but the £7 is now £80 and the £2 is now £2.50 so a big differential, so the gate fee of disposing waste to landfill is expensive, which enabled different technologies to come in at a cheaper price.

LF: There was a fiscal initiative there, but there were pressure groups developing. How did they impact?

BD: Well, I don't know whether they did. To build a new facility, be it a waste-to-energy facility, or a recycling plant, or whatever, is difficult. If a company wants to extend a landfill the locals will probably object. One of the problems is the majority of the public, and I may be doing some people a disservice here, just seem to think that it's not their waste, that it's our waste that we're dealing with, but it's the public's waste. They seem to think they just put it out on whatever day it is and it disappears. The fairies come and it goes. After that it's not their responsibility. What some people fail to understand is, it has to be dealt with; something has to happen to it. The facilities nowadays that are being built are highly technical, even the landfills are highly technical. Millions of pounds are spent on a new landfill, or extending a landfill before even a crisp packet goes in it. They never seem to join all this up. That's probably some of the industry's fault for not doing our public relations (PR). But we're getting better at it and we're much better at it now than we were 20 years ago.

You still get pressure groups about incineration and the dioxins but I think the tests have proven that the air coming out of a modern incinerator, waste-to-energy incinerator, is a lot cleaner than you or I would inhale if we stood on Piccadilly Circus for a day with the emissions from the cars, etc. You will still get people moaning if you want to put a materials recycling facility in an area but on industrial estates they shouldn't have any problem. I know of a development

in the Leicestershire area where they're building a number of new homes, a few hundred homes, and within that development they're putting in a facility to take the waste from the homes which will not only supply them with electricity but heat, to heat the homes and all the power. Now that must be the way forward because why would we export waste materials, RDF, Refuse Derived Fuel as we call it, to Germany and northern Europe where they put it through their waste-to-energy plants and then we buy the energy back. That, to me and many of us in the industry, is ludicrous.

LF: When you were working for Deards and then Gus Davies, what were their relationships with the public sector?

BD: We had a number of contracts back in those days in Deards with local authorities. They were called dusting contracts back in those days where our vehicles and men would clear waste and pick up your dustbins. We worked for London boroughs like the borough of St Pancras, and we tipped the waste in our depot at Camden Town into a barge and that barge was then hauled to the London Brickfields up in Buckinghamshire, where it went to landfill. Our horses pulled those barges up the canal systems to the landfills. We were doing that back in the 1920s and 1930s for local authorities, so we were working for the public sector as well as the private sector.

LF: Were there any difficulties or tensions in the relationship or was it just a clear contractual relationship?

BD: We did local authorities from Bushey in Hertfordshire, Finchley, Camden Town, Islington, Finsbury right down to the river, and most of those were Labour-controlled councils. It was one of the arguments my father had with Margaret Thatcher, who was also our local MP at Finchley, so we had a good working relationship with that as some of those councils became Tory-controlled, they took the work contracts in-house, which is interesting. It ought to have been the other way around. Slowly local authorities started to bring those contracts in-house although now many put them out to tender. So some of the major players in our industry now, the SITAs, the Biffas, the Veolias, are tendering for those contracts.

LF: What might industry do to make the public more aware of its waste?

BD: Children are being educated at school now about recycling and you hear stories, 'My son/my daughter told me off because I didn't put that into the recycling bin,' and those sort of things. So the children now are getting educated

in school about waste and recycling. When I was a child, or even my early days in the industry, nothing was ever done. We just went in and cleared the waste and people let us get on with it. And we gave a good service.

LF: There was a tendency to think you leave it at the front door.

BD: And then the fairies come and that was the end of it! People are more aware of it now I think.

LF: And in 1992 you were invited to work at the ESA?

BD: Yes, to come and look after the trade association because I'd done work for it for many years. I was involved with the trade body that worked closely with the National Association of Waste Disposal Contractors, formed in 1968, now called ESA. I started to work here in May 1993. I've been here ever since.

LF: How large is the ESA, in terms of the number of staff it employs and its membership?

BD: Let's deal with the staff first. We now have a team of ten. We punch very much above our weight, we represent the industry in Brussels, and to central government. We have meetings with Ministers, Secretaries of State, at that level. We're speaking on behalf of the industry. We have one administrator, and we have a finance person and all the other staff are dealing with policy and legislation issues on behalf of the industry. We have one person based in Scotland because they have slightly different legislation but he also looks after two portfolios on planning, and health and safety for the whole organization.

Membership wise, it's something that is always asked when you go to visit a Minister or civil servant, or senior Secretary of State. 'How many members have you got?' Well, the answer to that now is just over 100. Well you say, 'That's not very many.' When I started here we probably had 280 to 300 members but there has been so much consolidation in the industry and in the sector, the key figure is who we represent. If the industry's worth £11 billion, our members equate for 80 to 85 percent of that.

LF: Are there significant companies who aren't members and do you have a competitor organization?

BD: Not really, no. The CIWM is not a competitor. That is a professional body for individuals within the industry. I am a personal member, I'm a fellow, I'm a past president; I sit on their board now but not as a representative of ESA. There are other smaller trade bodies dealing with anaerobic digestion, renewable

energy, resource management, or the reprocessors. So there are sectorial bodies, but there isn't another main trade body that looks after the waste recycling sector.

LF: Are there branches of the industry that aren't members who you think should be?

BD: There are, yes. Nobody really knows how many companies are in our sector. If you get the local paper you'll see an advert that says 'rubbish clearance, skip for hire' and a telephone number. It could be a mobile. The one next to it could be multi-coloured with lots of numbers and guarantees given, all sorts of things written on that little square. And the chances are that the simple one is a bona fide company, one-man business. He's got his own lorry, he's got his own skips, he's got a contract or he knows where he's disposing of his waste. The other advert, could be one man and one lorry, doesn't own his own skips, borrows everybody else's, and when you hire one from him he doesn't come and collect it. So he collects the cash and then you, the customer is left to deal with it, and probably get fined by the local authority because the skip hasn't got a permit or it is left there after the permit. There is a rogue element, may not be insured, may not have the right permits and licences whereas the other one has. He is part of our industry, the other guy is not part of our industry. We have just written a report on illegal activity in the waste industry, and indeed Government have just put in the last budget £5 million to be spent on dealing with illegal practices in our industry. We're working with them and the Treasury to make sure that the £5 million is spent correctly and wisely.

LF: When you see a change in national Government, say over a five-year period, do you see any significant shifts in policy and strategy?

BD: Whatever Government is in power, the environment should be on an equal footing. I think when the Governments change, different Governments have a different view of how to do the same job; the job done but in a slightly different way and I think that's probably the best way to describe that. We've always argued it should not be a political issue, if that answers the question.

LF: You've had an incredibly rich career for 50 years, and you've seen massive changes. What were the best and the worst times?

BD: Oh, the docks were great fun. You know it was getting to work and doing a deal if you like. The one thing I miss here with the trade body is you're not out there winning contracts, the deals you do here are different deals. The drivers,

all of them were of a character and you learnt very quickly how to deal with those. Some of them were quite intelligent but decided they wanted to drive a lorry for a living. Others were, you know, had basic intelligence, and some of them, I had guys working for me in the docks who signed for their wages with a cross, even in the 1980s. Some of them couldn't read and write but you'd get their wages wrong, and they knew it was wrong for a penny. They were brilliant guys. Most of them were very loyal. They realized that if we had a good business and were making a good living, they would as well, and they did. But those ten years in Docklands were an experience, the things that you came across and saw were quite amazing.

LF: And the least enjoyable aspects?

BD: I think splitting up the family business. That wasn't fun. But different people wanted to do different things or saw benefits elsewhere and the only way then was to say, 'Well, let's all go our separate ways.' That I think was probably the worst time. The Gus Davies company eventually became and still is a property management company, which my brother ran until he died very recently.

LF: How do you see the ESA going forward?

BD: I think the industry now works far more closely together. Two years ago I started a trade association group where the chief executives of the trade associations and professional institutions, CIWM, meet here every three months and we go through the issues that are confronting us all. We can focus on the common ground and go with one voice to Government and say, 'This is what the sector needs.' The Government will then listen. What they don't want is everybody telling them to do different things. We can still operate under our own banners but we can work very closely together because there is so much common ground. Because all the legislation comes from Europe we all have to be aware and make sure that what's coming from Europe can be worked, and is manageable, under UK law.

LF: Do you want to say anything about the role of Europe?

BD: One of my colleagues spends a great deal of time with a European Association called the European Federation of Waste Management and Environmental Services – it's all the ESAs of Germany, France, Spain, Belgium. All those trade bodies from those European countries have formed a European Federation. Our

own chairman is going to take on the presidency of that for two years and my colleagues in our policy unit go to Brussels on a regular basis, so we're very much involved in the very grass roots.

LF: Thank you. It's been absolutely wonderful to talk to you and you just have such a rich history. Is there anything else you would like to say before we finish?

BD: I don't think so. I've enjoyed every second, even the bad bits I've enjoyed. And, at nearly 69, the fact I'm still doing it and here at seven o'clock in the morning probably proves that point because if I didn't enjoy it, I wouldn't be here, and doing what I do. I understand the industry, I know the people, and I know how it works. You learn something new every day, you never know everything. It's a fascinating sector, and for young people who think the waste industry is carrying a bin on your back, the technologies and the jobs in our industry now are highly technical. Chemical engineers are required to deal with hazardous waste treatment, electrical engineers work in these massive waste-to-energy plants. Our two incinerators in the London docks all those years ago, we lit those in the morning with yesterday's *Racing Times* and a pack of Swan Vestas. Now they press a button and these massive plants are fired 24/7. So it's changed and the technology now and the expertise required within the sector is colossal. Yes there are still people sweeping the streets, as you will see local street cleaners, or people pushing wheelie bins around to the back of a lorry and loading it up. Yes, there are still some jobs like that to be done. I think you could cater for anybody's needs in the sector.

LF: You were going to say something about the Smithfield Show.

BD: The Smithfield Show, the Royal Smithfield Show, was held at Earl's Court every year and it was the UK's big farming show, and farmers would bring their animals from Scotland, Wales, from all over the UK. You had the big tractors and all the equipment needed in the farming sector. They would all arrive on the Saturday when the show opened on the Monday and we went in to muck out every day. It was a major job clearing the material. The guys would start at two o'clock in the morning, do the Earl's Court job with me and I would be there all through. Then I would go back to the office, and do a day's work, probably go home about four, have something to eat, go to bed, and get up at one o'clock to go back, and the guys would do the same. They would work until about lunchtime on their ordinary work and then go home. I don't think some went home. On the last day, when we finished on that Sunday, when we cleared the lot and we left Earl's Court looking pristine, there wasn't a straw you could

find, we then used to take the lorries back to the yard and go to a pub up the road and celebrate another year done. It was another part of waste management. We would sell the manure to the Royal Parks, which they would store, they couldn't use it straightaway because it was too acidic so it had to be stored for a year to decompose and then they would use it as compost. If you go into Green Park, Hyde Park, all those parks, if you really hunt around they've got big areas, work areas, and so they would store it there. Another job we used to do which came under waste management was clearing the leaves from the Royal Parks. All the leaves in January/February had come down. The Parks' staff would clear them, put them in these compounds, and we had the contract to go and clear the leaves. I remember, my wife, when we first met she said to me, 'What are you doing tomorrow?' And I said, 'I'm measuring leaves in the Royal Parks.' You went along and measured the leaves because they were cleared by the cubic yard and you would have a pile perhaps stretching 100 yards, six feet high, so two yards high. You just worked out, you agreed the quantity and we would send men and lorries to clear all the leaves from the parks.

LF: What fascinating stories. Thank you very much.

Figure 4: Mr John Ferguson

Mr John Ferguson OBE BSc (Eng) BA MA CEng FICE MIMechE FCIWEM FCIWM (b. 1927) worked at the GLC's Department of Public Health Engineering from 1966 as a Project Manager for the Edmonton waste-to-energy plant and other capital developments for waste infrastructure. In the 1970s he was Head of the Design and Development Division of the Department, then its Deputy Director. From 1982 he was General Manager of the GLC's Waste Management branch of public health engineering, until the GLC's dissolution in 1985. He was appointed the Director of the new LWRA in 1986, and worked there until its incorporation into the EA. In 1996 he became Chair of the Thames Regional Environment Protection Advisory Committee, and served until 1999. He was President of the Institute of Wastes Management (now CIWM) from 1990 to 1991, and of the ISWA from 1998 to 2000.

4 Ferguson, John*

Lynda Finn: John, can you tell me when and where you were born, and something of your family?

John Ferguson: I was born on 13 October 1927 in Highgate in London. My father was a civil engineer. He was in the First World War as a Sapper, but before that had trained as a mining surveyor in the Lanarkshire coal mines. After the War he qualified in 1923 as a civil engineer. Then, with my mother and my elder sister, he went out to South Africa for three years installing railways on the sugar plantations and so on. They came back to London and I was born in 1927, and my father started work with a company in steel handling in the City of London. He worked his way to become Managing Director of the company. He was a very positive person as a father, so I was very fortunate having a loving mother and father.

LF: Tell me a little bit about your childhood. You lived in Highgate?

JF: About 1935, I was very fortunate in getting admitted to Highgate School. The school moved down to what was called Cholmeley House in Bishopswood Road in Highgate, just about the time of the Coronation of King George VI in 1937. It was delightful to go to this beautiful new building and with all the sports facilities you could want. When the Second World War broke out in September 1939 the majority of the school went to Westward Ho! (in Devon), but a small group of us stayed in Highgate.

In January 1941 I went into the senior school, which was still in Highgate. The master in charge was called Tommy Twidell, and he was a Greek scholar. I always enjoyed his attitude to education. Even though the war was in its deepest depths in 1942, he took us to the Royal Academy for an exhibition of Greek art, which was just an eye opener to me. It kept what was happening in proportion because we were going through all the trauma of bombing and so on. I left in 1943, I managed to get my matriculation into London University in January

* Edited passages from the interview conducted by Ms Lynda Finn, for the History of Modern Biomedicine Research Group, 4 June 2014, in the School of History, Queen Mary University of London. For more details, see 'Related resources' at the end of this volume.

1944 so that was when I started to get involved in Higher Education. I still keep in touch with Highgate School, I enjoyed being in London throughout that period because it gave you a dimension of just what was going on as a result of the Second World War.

LF: There was no encouragement for you to be evacuated along with the other children?

JF: This was discussed with my mother and father, and this is what I like: they said, 'Well, what do you feel?', and I said, 'Well, I'd rather stay in London.' 'Well, sure there is a risk but nevertheless, if that's what you wish, we fully support you.' So I had the choice, and I'm always pleased that that happened.

LF: Let me then take you on to Higher Education.

JF: I was only 16 when I got my matric. Then I went to what was called the Polytechnic Regent Street into the Department of Science there. The man in charge was a Dr Topping. He was in charge of science and physics and he was, again, you meet people like this who have an influence, and I was still a little uncertain as to whether I would go into more physics, more pure science. I decided on science quite early that was what I always wanted to do. It's one of these decisions that as a child you make, and I'm sure influenced by my father and all the activities he carried out because he was always showing me as a child what railways do this and what machines can do that, because he built up the fleet of earthmoving equipment and so on, and invented things. So I was determined to get a Bachelor of Science degree. Whether it was in science or engineering, I hadn't quite decided. In those days you spent two years getting an intermediate degree in BSc Engineering and then of course National Service came along and I started my National Service in 1947.

I wanted to get into the Royal Engineers. Again, you can see my thinking: my father got in, and I would like to do so. I was very fortunate, I managed to go to the Mons Cadet School, and then from there to the Royal Engineers training school and I qualified there, became a second lieutenant, in 1948. Then I managed to work my way up to a captaincy in fact, but serving in this country, in what was called Railway Group. At that stage two of my colleagues who were permanent officers said, 'John, you're doing so well at 21, why don't you go for a permanent commission in the Royal Engineers?', but I still wanted to get a degree. I got a fully granted course, again back at the Polytechnic Regent Street to go for an external degree in engineering, which I did and got by 1951 by

which time I'd become a student member of the Institution of Civil Engineers. That was important, because I got involved in organizing visits and so on for students.

Then I joined my father's company because there were already two sons of the other director, they were joint managing directors, so it was like a family business, which was great.

LF: Can you tell me the name of the company?

JF: Yes, William Jones Ltd. In 1941 they were totally bombed out. My father discovered the company's safe on the top of a pile of rubbish. Their works were in Westmoor Street, Charlton – a rather strange connection there because that is the site of the Thames Barrier. More of that in a few moments, but that's where their factory was: making, maintaining the earthmoving plant, manufacturing earthmoving plant and railway materials. I started on railway layouts and earthmoving schemes, investigating for example, German multi-bucket excavators, and projects like that. I wanted to qualify as a chartered civil engineer but you had to do anything from seven-to-ten years from your graduation to get enough experience.

The interesting point was I got involved in the development of handling machinery for sewerage treatment works, which was another aspect of engineering that had its effect much later on, because I got involved with the Institution of Public Health Engineers. Later on in my career I was involved in the provision of sewerage treatment handling equipment to Libya in the days of King Idris, two or three years before Gaddafi came to power. It was very interesting, having to go to places like Tripoli and Benghazi, and deal with the installation problems and so on. Because of this type of equipment, I also got involved in an organization that became known as the ISWA. I had the opportunity to exhibit at a town in northern Italy called Trento where they had their annual congress and small exhibition. I went there, and I was absolutely amazed at their knowledge and foresight in the academic side of waste handling, in all its aspects from collection to different forms of treatment, composting, incineration, and so on. That was a fundamental point then, because I'd just qualified as a chartered civil engineer in 1965 and I was fascinated by this scope of international development.

LF: Can you approximately date this period in your career?

JF: From the time I joined the family business in 1951, I ran through different forms of engineering work, mechanical and civil. It was in the first half of the 1960s where I really expanded out into this public health engineering equipment and overseas work, and so on, and that took me up to, by 1965, having qualified as a chartered engineer. I knew that that was the time to look around for other opportunities. It was also, just by coincidence, when London's government totally changed, and they introduced this amazing concept of having a GLC, which was a very fundamental political change in the way London was run.

London County Council (LCC) had always had a very strong architects' department, lawyers department, education, that was all very strong, but on the public health engineering side the Middlesex County Council had developed the drainage systems for outer London, and with the coming of the GLC the Middlesex County Council was absorbed and they thought, wisely, 'we have to form a totally new department for public health engineering', and this is what caught my eye. This public health engineering department was to cover flood control, sewerage treatment and drainage, and waste management. It was the first time I'd seen this concept, and I thought, 'well, I'll have a go'. They were advertising for qualified civil engineers to join the department, and an eminent engineer, joined, his name was Vick, followed by, Stanley Dainty. Stanley Dainty was the Chief Engineer of the Middlesex Drainage Authority, and he brought his knowledge of engineering, but was very keen to have waste management, and the politicians wanted that because they were amalgamating the waste management services of, I think it was, 65 different authorities and they were having to organize the disposal. Collection was left with the new London boroughs, there were 32, of them plus the City of London. So they would go on collecting, but we would have to deal with the reception of these wastes, their transportation, treatment, and afterwards, disposal. That was a marvellous opportunity for an engineer to go in.

LF: Prior to the formation of the GLC was each of the London boroughs responsible for its own disposal?

JF: Yes, 65 of them, and you can see why it was a great opportunity and fully backed by all the parties. I was the first chartered civil engineer to join this part of the Public Health Engineering Department on waste management. They drew other senior officers from all over the country who had had experience in different cities of running their systems, so I was joining a cadre of very well qualified waste engineers, although they had all sorts of titles like superintendent, or so on. I was the first chartered civil engineer to join this group and get

involved in what was called the Design Development Division under the initial control of a Mr Stirrup who unfortunately died within a few weeks, and he was succeeded by a man I'll always look up to, Philip Patrick. He was a Pathfinder in the Second World War, he was a man whom I could see from my experience in the Royal Engineers, a sort of man you can look up to who will take decisions and you can talk to late at night and so on. I was very fortunate in that. So my first work was, for example, on getting a small transfer station going in North London.

LF: Can you say a little about the waste transfer project?

JF: How do you transfer waste from collection vehicles into bulk vehicles and then haul that bulk load out to landfill in Hertfordshire? What we had to do was take over a derelict structure, put three holes in the floor of that structure, put walls around those floors for safety, and barriers, and then the collection vehicles could discharge their loads directly into the vehicles below. It's as simple as that. That simplicity was repeated in more and more sophisticated ways and it's even used today, but it was so simple. I had to get it done.

LF: Had anyone done it before?

JF: I'm trying to think, had it been done before? It was just a sensible thing to do [laughs]. It was the start, it was the very first thing I was told to do. 'Go and get that done.' We had a boss in the GLC, a man called Frank Flintoff, a character in waste management. He would say, 'Well, what's your solution?', and you come up with it, and he said, 'right, get it done'. I like bosses who will do that, and you don't argue about it or fuss about it, you get it done. So that was good fun, and it was a good start, being the only civil engineer in the Design Development Division.

But the big project was the Edmonton waste, we call it nowadays, 'Energy from Waste', but it was called 'Edmonton Incineration Plant'. When we started to think about the Edmonton plant, it was just a sewerage treatment plant but it had land available about seven or eight hectares, which we could build on. . It was big enough to put in a major plant to deal with up to 1800 tonnes of waste per annum. So it was a very big development, and I had another engineer I worked with. He was known as 'Higgie', Mr Higginson, and he had the responsibility for incineration plant design, but we were part of a big team. We had the architects who were the old LCC architects; we had their scientific advisors for things like air quality, quality of noise. We had a fully established Department of Mechanical and Electrical Engineering under a man

called Belcher, but we were the project leaders. We needed a big team of civil engineers, we employed W S Atkins and Partners, and I had to lead this team, not for the whole project but for this civil engineering side. We had to dig, it was known by the press as the biggest hole in London. Anyway, we did have to excavate this huge hole for the bunkers to take the waste, and equally big holes for the turbine house, the foundations.

LF: Which years are we talking about?

JF: The conception was going on through 1966 and 1967, and the actual start was 1968 through to 1972: four years' construction.

The plant actually worked very well. It had roller grates, which was quite an innovation for grates, the waste would roll down them and come out with the clinker at the bottom, so it was a very good start to the activities. We were, of course, having to work on other schemes because we had to cut down the number of totally inefficient stations, of which there were about 60 different stations. We had to phase them out. Landfill was becoming almost an exception in London. We did have one great big site on the south side of the M4, close to Heathrow, where we did carry out all sorts of improvements in landfill techniques. But for most of our landfill, we were having to look way out of London for the 3.5 to 4 million tonnes of waste we had to deal with per annum. We had to plan a series of stations on the Thames, and stations that would be served by rail out of different parts of London, so in this same period we were also starting to plan improvements at the wharf at Westminster: Grosvenor Dock. There was another one at Walbrook Wharf, which was in the City of London. The major task we took on, was we found a site near Battersea Power Station, and it still is there –if you see the developments of Battersea Power Station now you'll see a small red roof tucked along the river bank there – and that was Cringle Dock. It was a site with a suitable river frontage, it had a depth to put in a series of chutes, and I go back to my concept of bringing vehicles in, tipping in through chutes, into a bunker, and from the bunker, lifting the waste out and putting it into treatment plant, which in the case of Cringle Dock to begin with was to pulverize the waste and then load it into barges. The reason we pulverized at that stage was to make it a more homogeneous material to landfill down at the well-known site called Mucking, that's where the waste was going, that's down near Pitsea, There was this tradition of the use of barges for waste, which was pretty archaic so this was a definite improvement in getting Cringle Dock. Before I leave Cringle Dock, again we had the help of the architects of the LCC who had done work like the Royal Festival Hall and those sorts of architectural

features, and they brought their thinking in and their enthusiasm into doing waste plants, which I found marvellous. It was the same with the mechanical engineers, they thought, 'we've got new things to do here', and that was good. Again, we used a company of civil engineering consultants called Mott, Hay and Anderson.

I was project managing these teams, and it was quite an experience doing this because you had to make sure that the project was done to time and cost, because behind us was, and I'll come on to this I hope a little later, the political support. I'm just giving you the technical features at the moment, but political support was very important.

We had to think about other long-haul arrangements for going to places in Kent, and to Hertfordshire, and out into Oxfordshire. We found a perfect site for a transfer station where we would elevate the platform, take collection vehicles up, tip through holes with barriers on, into, and in this case we had decided to go for what are called ISO (International Standards Organization) containers. They are the containers you see throughout the world in shipping, and I thought: 'Let's go for those. If we can get that standardization it means then we can have handling, cranes and so on all using this totally safe system of lifting and handling and moving by rail.'

Meanwhile, we were negotiating with British Rail to get trains that would take 800 tonnes of waste, and each of these containers would take about 20 tonnes, something like that., We could arrange to build rail heads and have a contract with them for the unloading of containers, their transport, their tipping and then back onto the rail, because we wanted to arrange daytime loading, night-time haulage, daytime unloading, and so on, to get this circular system going. As the years went by, I was very fortunate to build up the Design Development Division, so that over the ten years I was beginning to get qualified engineers from different parts of the world who would then project manage these projects on my behalf because I was moving up the divisional scale from being a Senior Engineer into an Assistant Divisional Engineer, and so on. When Phil Patrick left, I was Assistant Divisional Engineer with responsibility for a various number of teams working…

LF: And this was approximately which year?

JF: It would probably be about 1977. We then had to do the same arrangement with haulage to Kent, and with haulage for example from Hillingdon. That plant still operates today from Hillingdon out to Hertfordshire, but we're now talking about going on into the early 1980s.

LF: We were talking about what was then called the Edmonton Incinerator, how was it greeted when it was opened? What sort of reception did it have?

JF: We'd done so much work on noise, and the quality of the effluent, that's what worries people: what is going out of the chimney and being dispersed. We didn't get the reaction that you get nowadays if you say you want to build an energy-from-waste plant. It was quite a nice looking plant. It was modern, you didn't get clouds of dirt coming out the chimney because of the high quality of the gas cleaning plant. The flow of vehicles off the North Circular Road, they went onto our specially designed road layout around the plant and then back onto the North Circular Road so they were not impinging on people's local road systems. I think that's why it's gone on, and still today it's operating. I think at the present time they are still planning to go on using it a little longer, although we had thought it might have been phased out by now, but it's a very interesting question, the length of the life of these plants. It's something I'm very pleased about.

Okay, we move later on in history to the whole need for recycling and so on, which is admirable and is happening. For example, when you think some London boroughs are recycling 40, 50, 60 per cent of their waste, but there still is this basic waste which you can't recycle. At the same time as we were handling the 3.5 to 4 million tonnes of household waste, there was at least three times to four times that of construction, demolition, and that type of waste being moved: excavation waste. As London developed, you got this constant need to find places for those wastes. For one thing, they had to find landfill for those materials so we had to make sure that our landfills were contracted out to take 30 years from a rail haul site, or the residuals from Edmonton, so that we knew we would still have outlets while we were competing with the construction industry and these other industries for the disposal of their waste.

Initiatives were starting in the beginning of the 1980s for recycling; for stopping the illegal transfer of waste; the dumping of waste; the clinical waste saga. For all those activities I was having to see how we could develop systems to cope

because in the GLC, we had our Design Development Division, we had the operational side and the operational side was responsible for the staffing, the running of all these plants.

LF: Could you tell me about the extent to which the GLC was a pioneer in this area?

JF: We had to be pioneers. We were coping with a major population centre with the biggest city waste flow of I'd say 3.5 to 4 million tonnes of household waste, having to take it outside the boundaries of London by various means. That is why we pioneered the use of containers, containerised river haul, the development of high quality energy-from-waste plants at Edmonton and at the Southeast London Incineration Plant, all of which were conceived, built, and brought into operation during the period of the 1970s to early 1980s. This was certainly an example that interested other cities, but in particular other countries on the international scene because we were leading on these different quality developments in which we, at all times, took account of the environment in which these plants were built: the way in which vehicles would come in from a multitude of different authorities; the safety of those employees who were on those vehicles; the health and safety aspects of the operators in our plants, and the way in which we dealt with these matters in a pioneering way. It was a delight, the sense of innovation, and this lead to enthusiasm both in staff and the elected members, who were, of course, at the back providing finance and all the other aspects that are needed getting a range of projects like this off the ground. Bear in mind that every one of them had to go through the planning situation, and that was not easy, but they all succeeded in getting planning permission for a whole range of the developments I discussed.

LF: Was the political support pretty universal?

JF: It's one of the key aspects that I found joining the GLC, and I found it as supportive as I would expect throughout that 20-year period from 1965 to 1985/86 in that the elected members from the 32 boroughs and in the City of London were from different political persuasions, but were united on the importance of public health work. They worked closely together in ensuring that we could get our projects sufficient finance, planning consent, the acceptance of long-term contracts for haulage, both on river and rail and road, with landfill sites that would take our wastes not for a few years but for long-term: 25-year contracts, 30-year contracts. This was fully supported by elected

members throughout the period, and this was invaluable in that it was almost a uniting factor between different political factions that this was a vital service to Londoners.

LF: You'll have seen major changes in health and safety over the length of your career?

JF: These activities involved outside people, the boroughs' collection vehicles, and other collectors of waste coming into our property, and we had responsibility for their health and safety. The fact that a vehicle would reverse, that's in itself not a totally safe operation, it has to be carried out very carefully, so we had to design plants so that they could reverse safely. High visibility clothing was the norm, the use of helmets was the norm. These were all introduced because we did have a very active safety organization. We had our own Chief Safety Officer and four Safety Officers to work in ensuring that the standards we'd laid down were actually carried out. I found the attendance of Safety Officers, particularly the Chief Safety Officer, vital at project management meetings: it was as vital as having for example, a legal advisor there or the Planning Officer. It was a team that involved health and safety from the very beginning right through to the operation, and I found that a very helpful attitude to getting plants designed, built and then operational. It was fully backed by the elected members because they felt very strongly about the aspects of health and safety, not only of our own staff but of those people who came into the plant as operatives from other bodies.

LF: Were there other cities in the country hoping to model some of their practices on the GLC?

JF: We would keep in touch with all that was happening in Glasgow, or in Manchester, or in Bristol, or Birmingham, for example. We even went to the extent of organizing a formal conference in Glasgow in 1990 of which we took a large part in organizing, exchanging views both on the politics and on the technicalities of waste management, because, Scotland, having its own ministers and so on, it was interesting to get their viewpoints and get people from the political scene in London, This is what's so important, to exchange these views and how you manage between one city and another.

The same with what was happening in New York or Chicago or Houston. What's happening in Melbourne or Sydney? I remember delivering a paper in Berlin to the International Congress of ISWA where they wanted to know what

we were doing about fly-tipping? This was the thing that worried everybody in 1986, the scourge of fly-tipping. This was certainly an important part of my work, and I think of the work of the Department.

LF: Can you tell me a bit about your career from the early 1980s when you were Divisional Engineer through the promotions and your expanded role.

JF: We were concentrating on a number of particular problems such as the burning of tyres, or the question of abandoned vehicles, the need for ever-increasing civic amenity or recycling centres for the public, and clinical waste issues. All this was happening in the early 1980s, but we had the clear sign that the GLC was to be abolished. We had two years notice of that. There was a great discussion going on, 'what should happen to waste management in London?' Should it revert to the London boroughs, let them take on all responsibilities that we had in the GLC Public Health Engineering Department? At the same time, the NRA and Her Majesty's Inspectorate of Pollution (HMIP), were suggesting that it might be a good idea to form a body that joined together flood defence, river control and the hazardous end of pollution control, HMIP's activities. What are we going to do about waste? We had developed sufficient expertise I think to argue a case that waste regulation should not be handed down to the boroughs but would better be part of an environment agency.

Just pausing there, I think my comments on the NRA and HMIP actually come much later in the timescale than we are now discussing: the last couple of years of the GLC, and how we managed to find through Parliament's decision an independent, London-wide regulation authority. That developed from work that we'd been doing in the GLC on regulation, and the control of bodies of people that handle waste and so on. It was strongly argued that it would be better to have one London-wide authority for regulation, and we actually had to work quite hard at that in getting Parliament engaged through the activities of the House of Lords Science and Technology Committee which was chaired by Lord Gregson, who was on the Royal Commission on Environmental Pollution chaired by Lord Nathan – both of whom took a great interest in our activities in the GLC public health engineering waste side during the mid-1980s because of our activities on, for example trying to get a common standard of competence within the industry, trying to deal with the outcome of what was known as the 'Pitsea experience', where you had to get much better control over the handling of waste and the knowledge of what waste is.

LF: Please say a little more about the Pitsea experience.

JF: The Pitsea experience was a fatal accident which the House of Lords committee under Lord Gregson investigated. The Gregson Report made a whole number of recommendations including the need for far higher standards of knowing what is on board a vehicle, which led to the concept of having every vehicle registered, transfer notes, and so on. We were much involved in supporting this, and Lord Gregson and Lord Nathan were enthusiastic that this sort of body that would be big enough to keep initiatives going, particularly in London. In 1985 they decided that they'd dissolve the GLC but set up a London-wide waste regulatory body. It was decided that it should be made up of a board of elected members from each of the London boroughs and the Corporation of London, and a number of officers responsible for the carrying out of the activities of regulating London's waste. Within the next two or three years, we saw the setting up of the Waste Management Training and Advisory Board of which Lord Gregson was the first Chairman, and myself and Roger Hewitt were the two Deputy Chairs. This was financed by the industry and supported by the DoE.

LF: I just want to take you back a little to the GLC because you were promoted a number of times. We've got you to Divisional Engineer in the early 1980s.

JF: Well, I can't give you the exact date but when I became General Manager of the 'Waste Management Branch', of the Public Health Engineering Department. Of course, then I was responsible for the operations and the design and development side. It must have been at the same time the NRA was being developed because that's where responsibilities went for the drainage and the Thames Barrier and so on, at the same time as the LWRA was being formed.

LF: You went to the LWRA in 1986?

JF: Very fortunately we were still based in County Hall, it hadn't been sold, and I had the good fortune to have a Chief Clerk, Mrs Delia Buckle. We shared the same clerk, we shared the finance, legal, HR, personnel, with the Fire Brigade. It was a good idea to share that out. We had a great many similar members, not totally because they were separate members of the London Fire Civil Defence Authority and separate for the LWRA, but it was the same concept of a Board. We had four or five meetings of the Authority a year. We set up an executive committee in which the leader of the leading party was the Chair of the Executive Committee of Members. Then I developed a structure and I had an Area Manager in charge of each of those offices with staff who could understand licensing, pollution control and so on. I had an inner core of people responsible

on the Board for, recycling, surveying, and land surveying, and I had my own finance administration. So I formed this Authority. Effectively, you start from scratch and you do it but I was getting people mainly from the old GLC, a lot of them wanted to retire anyway but I managed to get a whole number of people to join me.

LF: How was that then, starting up a new body, clearly an innovative body after the demise of the GLC, with known experts, people you'd appointed? It sounds as if it could be both exciting but quite daunting.

JF: It was both. The strength was that we wanted to do certain things: we wanted to make sure all London's waste was traceable, and we were fully backed by Parliament in that and by our members. We wanted to make sure that every site knew what it was handling, that it was licensed, and we wanted to know that everybody who was managing these sites was technically competent. That's what happened when the GLC was divided back into boroughs, they actually carried on in very much the same way. In fact, today North London still operates as a body with the, five boroughs, operating together. West London Waste Authority, it's made up of the same group that formed in 1986. Some boroughs will never join into things, they like being independent. I think Bexley's one, and also one of the best recyclers in the country. I think I started with about 87 people, by the end of the ten years we were about 130 because some activities grew, the need for recycling became more, and Jeff Cooper took a tremendous part because he came from the GLC. He was our first Recycling Officer in the old waste branch and then became in charge of the whole recycling initiatives in the LWRA and stayed there.

LF: Can you say a little more about the impact of recycling?

JF: It's very interesting to look at statistics, from 1900 right through to the beginning of the next century and see how, for example, ashes and cinders were the main waste product in 1900. You move forward to about 1990 and you'll see that packaging becomes the huge thing, and it's the development of plastics during the 1960s and 1970s: how people's buying habits, material used in the home. Take a television set: there's more packaging than the television, or the prepacking of tomatoes, or so on. The way in which we were very actively trying to find ways to recycle, there's nothing very new in that. They were doing that back in the 1920s, 1930s, 1940s, but we've found that the manufacturers have tried to make the materials more recyclable, and this is all during this period, particularly I would say from the 1980s through until now of course.

The change in packaging is what encouraged people like Jeff Cooper and his colleagues to go and explore different things. For example, Jeff and Lawrence Peterken went to the States, in 1983 I think it was, to look at the latest systems of recycling there. It was quite clear that the best way was to get the recycling done as early as possible. Containers have changed enormously over the years for recyclables to be recycled by the householder, this is the change. That's why you can hear places like Richmond or Bexley have very high recycling rates, because they encourage every possible way of doing it. We were the very first authority to have a Recycling Officer, Jeff Cooper, back in the 1980s. Now of course I think every authority throughout the country, district, county, so on, they've all got Recycling Officers because that's the way the members want. I'm afraid we keep on producing more and more waste, that's the only problem. We haven't seen a great dip in quantities, but the way in which they're dealt with has changed so we can see more and more recyclates.

LF: Tell me the best and the worst times at the LWRA.

JF: One of the best things was that we had developed, almost a tradition of having, an annual conference each year. Together with the annual conference, we had an annual report and this went on for ten years. At the annual conference we'd get people from all over the world to come and talk, politicians, technical people, and so on. It was because London was big enough to do this, and it had the full support of the members, they were so enthusiastic about it. That was one of the best things because it enthused people to think back: 'I came to your conference a year ago. Now here I am on the platform speaking,' and it could be an MP or member of the House of Lords or someone from Paris, or someone from New York. It certainly had this international feeling that was going on, and was very good for the members. We had great support from the DoE. They were really interested in improving waste management. It can't always be the way, they have other priorities, but during that ten years that was taking place.

It's a disappointment when you can see the end of an Authority coming along. In fact, I was asked if I would stay on for the last couple of years because the members already knew it was planned to abolish the concept of the LWRA and move it into the EA.

LF: What was the reason for that?

JF: It was a reverse reason in a way. During the period of the LWRA there were problems with how waste regulation was being organized elsewhere in the country. It wasn't satisfactory. And at that time the NRA and HMIP were being

seen as successful bodies for regulating the rivers and the pollution control at Government level, or certainly at national level. There were, of course, many, many rivers boards, and many drainage boards, but you had to get some sort of coherent agency that would run all of this; but an 'agency' was the concept, remember, not an 'authority'. It was to be an agency, and this came out during the political discussions. Then the question came up: what do we do about waste?

LF: What was the political significance of the Government deciding on an agency?

JF: Because they wanted to keep it at arm's length from the elected members. That's disappointing because I had found the proximity of elected members very good over the 30 years. I'd found them very helpful, but that was the concept of the Government at the time.

LF: What do you think was behind that? Why did they want to keep elected members away from it?

JF: Well, you can have conflict between a central government and elected members at a local level. It's just going to happen because one party or other will be in power and might not share the same views at the local level. The agency concept was being promoted in, let me see, 1993/94/95, and we took a decision in the Authority, and this was by the Authority, and my Chairman Mrs Wykes and myself, and Bill Townend, a well-known Officer of our team went along to the House of Commons. We went along and argued that, taking all things into account, it would be better for the LWRA, and activity similar to that, to be part of an agency. That's how that was formed.

We were actually studied by, I remember, Ed Gallagher, who was the acting Chief Executive Officer (CEO) of the agency, coming and spending some time with us and sending his acting Finance Officer and other acting people along to study how we had organized an authority because they were going to have to set up an agency with members and so on. By 1996 we wound up.

LF: And had you decided to retire at that point?

JF: Well, fortunately I was asked in January 1996 if I would become the Chair of the Regional Environment Protection Advisory Committee for London Thames, just as a chair. It's a paid job but it's a chair, and you assemble a group

of people as activists, who are paid expenses but not paid a salary. And I found that interesting to form, but I did that for three years, and that was really long enough.

LF: But you decided to retire from the LWRA, is that right?

JF: I had to because I had gone beyond my normal retirement. They asked me would I serve two more years, because in 1993 I must have been 65, would I stay on till the end of the Authority, which I was very willing to do.

LF: Did many of your colleagues at the LWRA move over to the EA?

JF: Almost all of them did. They were absorbed into the Agency, much to my pleasure. Yes, it was nice, they all went in there, and some of them I still see.

A slight digression: in the years 1995 through to 2000 I became very much involved in the need to get a Royal Charter for the Institution, and I shared this desire with our Secretary at that time, Michael Philpott, and our Honorary Treasurer, who was Roger Hewitt – they're still both around – but we had to get the negotiations, and this is an interesting activity, how you negotiate with the Privy Council to get a Royal Charter. That took us something like three to four years to go through all the various systems because you have legal advisors; you're interviewed by the officer for the Privy Council; the representatives for the DoE; you have to get backing from other institutions like the Institution of Civil Engineers, of which I am Member, and the Institution of Mechanical Engineers, of which I am Member, and so on. But it was, again, an experience to get a body of women and men who can be recognized as professionals and recognized in the sense, recognised by other people as being worthy of a charter.

LF: What difference does having a Royal Charter make in practice to a professional body?

JF: It would enable people to join us knowing that they would become chartered because the word, it has a cachet, it has a recognition in this country. We are, I think, the only country that has such a system of charters, and of course they go way back, 600 years or so to chartered bodies, but it recognizes a certain standard of qualification. For example, when we were having the discussions, initially they said: 'Every one of your members, if you're thinking of becoming chartered, must have an honours degree.' Now that, actually, has changed a little bit because we said: 'We have many who are practical people who have never even got a degree,' at that stage – you know, the older men and some women. Now what has happened, we are now close to 50/50, men and women,

because we're getting more and more women coming in under environmental specialties who have got Honours degrees and they want to be chartered, and they're bringing in this completely new thinking. For example, on the Centre Council of the L&SCC (London & Southern Counties Centre) of CIWM now, London and some of the counties, I think we've got four men and four women.

LF: So the gender balance has changed significantly?

JF: Marvellously, and the charter made that difference on gender balance, on recognition of a certain standard of qualification, those are the main things that I can think of. Well, we'd been working hard, certainly I had, with other colleagues, working hard in getting international recognition.

LF: If you could look forward 50 years, 100 years, what changes might you anticipate?

JF: We had a meeting the other night organized by the United Kingdom Environmental Law Association. We were talking about what might be happening in 2050, for example, and do you know the outcome of that discussion, the final point was: are we going to be subject to a pandemic because of the lack of interest in the quality of water, the effect of chemicals on groundwater and the infiltration of groundwater by those chemicals, and the cycling of micro-pollutants into drinking water? It's happening now and they are worried about it. Is that going to affect human beings both in developed countries and in developing countries? That was the thing, rather than will there be improvements in systems of transport and maybe energy from waste? We can improve and improve those systems, but are we forgetting about the water side of waste, and is rather too much discussion going on on the solid side because the community thinks about recycling and the waste that they throw out. They forget about what goes down the toilet and down the bath, and out of the factories and so on. This, to me, is something that is as important to keep our minds on the target about pollution control and so on.

LF: It's been a real pleasure to talk to you, John. Thank you so much for your time.

Figure 5: Professor Jan Gronow

Professor Jan Gronow PhD BA FMinSoc MCIWEM (b. 1945) was Visiting Professor in Waste Policy at the Centre for Environmental Policy at Imperial College London from 2005. She is a geochemist and joined the DoE's Waste Technical Division in 1988 and then joined the EA on its formation in 1996. She managed the Government's waste research programme over a period of 17 years and provided technical advice on waste and resource management to policy colleagues in Defra and its predecessors and in the EA over that time. She was a member of the UK team that negotiated waste-related legislation in Europe for 15 years. She chaired the EU Technical Advisory Committee that developed the Landfill Directive waste acceptance criteria between 2001 and 2002. Jan has been an independent consultant since 2005. She was a strategic advisor to Defra's Waste Evidence Team from 2006 to 2012. She was co-author of Defra's Waste and Resources Evidence Strategy, 2007–2011, drafted to assist with the implementation of the Waste Strategy for England, 2007. She has been a Member of the Engineering and Physical Sciences Research Council (EPSRC) Peer Review College since 2006.

5 Gronow, Jan*

Lynda Finn: Jan, can you tell me when and where you were born and something of your childhood?

Jan Gronow: I was born in Folkestone in 1945. My father was a farm manager and my parents moved to an estate on the Surrey/Sussex border when I was six months, and so I was brought up in Ockley village which is underneath Leith Hill, beneath the North Downs, so you have this wonderful view of the village, and the village green, and the village pump, and up there on the top of one of the highest points in the North Downs, is Leith Hill Tower. It was beautiful. My father managed an estate for a lady whose husband had died in the war. So I had the freedom of this estate and spent so much of my spare time in the woods, building dens and doing things. I can't think how we remembered when to come home, but it was a wonderful time, which children don't seem to have now. I went to the village school, which was a walk across the green, and then went to grammar school, Horsham High School for Girls, where the education was fantastic. I was a keen sportsperson, was hockey and cricket captain, and ended up head girl. We had an extremely good education up to O level. Then the teaching that we had at A level wasn't as good. It was a shame.

I had a place at University College London (UCL) to do psychology. I didn't get great A level results, but I got sufficient to get to UCL. My mother and father didn't get on terribly well, and my mother wanted me to stay at home and I didn't see till afterwards quite what she was doing. And I didn't go to university and regretted it always afterwards. So I went to work for CIBA-Geigy in Horsham in their personnel department, and I stuck it for about six months.

LF: Let's go back a bit. You had an interest in science from quite an early age. Was there an influence from your rural and farming background?

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* Edited passages from the interview conducted by Ms Lynda Finn, for the History of Modern Biomedicine Research Group, 23 October 2015, in Imperial College London. For more details, see 'Related resources' at the end of this volume.

JG: Yes, I think so. My father had been to agricultural college. He's really quite an intelligent man, and I'd been on the farm quite a lot with him. My mother was one of those unfortunate people who was searching for something and didn't find it. And she was, sadly, she was unhappy. I wasn't desperately close to her, but I got an awful lot of tears from her. So she didn't have anything like as much influence on me as my father, who is still alive at 95.

LF: Your first job was not at all happy by the sound of it?

JG: No [laughs]. So then, in 1965, I got a job working in Leatherhead in the Printing, Packaging and Allied Trades Research Association. It was a time when Government funded several research associations with 50 per cent matched funding. In Leatherhead there were four or five such associations; there was electrical, there was food, and there was packaging. A lot of science in it, but I felt I was a technician and I could do better, and I eventually got a job at Oxford University.

LF: What did you do there?

JG: I worked in the Geology and Mineralogy Department, on geochronology, dating rocks. At the same time I went to technical college and did A level chemistry. The work was challenging and it was great. Went to some lectures in the Department. It was a good time. I met my husband there, and he was a biochemist, and we married and he had a post at Leeds University. So we moved to Leeds University. And very shortly afterwards, I got a job in the Geology Department in Leeds University. By that time, the Leeds lab was getting recognition and they got Natural Environment Research Council (NERC) money. And I started an Open University (OU) degree when I was in Oxford. Did I finish it in Leeds? I'm not sure because I had two children while I was in Leeds. Eventually my husband was offered a job in Cambridge and I thought, 'Great, I can shop in Sainsbury's again,' because there weren't any Sainsbury's in the North then.

LF: So we're in the middle of the 1970s now, is that right?

JG: Yes. Oh, I've missed out the fact that we moved to York first. We moved to York and I finished my degree in York. And after we'd agreed to move to Cambridge, in the *New Scientist* was an advert for a PhD vacancy, which had my name on it. And so we moved to Cambridge and I started my PhD in the Departments of Applied Biology and Earth Sciences.

LF: Your OU degree, your first degree, was in what?

JG: I did all the chemistries and I did all the physiology that there was, and I started geology thinking, 'Oh, I'm a geologist, I worked in geology departments for absolutely yonks.' And I remember going out on a mapping expedition and standing in the middle of a quarry and not finding it easy to map it, whereas some of the people around me could, and I thought, 'I'm not a field geologist'. That is the lovely thing about the OU, because you have time to find yourself in the courses that are available. I ended up doing chemistry and oceanography courses and ended up a geochemist.

And then this PhD turned up and the interview was horrendous. It was quite scary, and I didn't get it. But the person who did get it didn't want it in the end, so I must have been next. And grants were available, but I was too old.

LF: What was the upper age limit, and how old were you?

JG: I can't remember the upper age limit. All I can remember was the Head of Department happened to be Chair of NERC or something at the time, and so I got in. And I had two terribly different supervisors. I had one in Applied Biology and one in Earth Sciences, who was a mineral physicist. I was the first student in the Department to write my Thesis on a computer, which belonged to the Prof and we weren't allowed to change the dictionary. So there were an awful lot of geological words that it didn't like, and I wasn't allowed to change. And I got my PhD in 1984.

LF: And you lived just outside Cambridge?

JG: Yes, we lived in Duxford at first, which was fascinating, because the airfield was just fantastic.

LF: And you were working on your PhD till 1984, and your husband was employed by the University?

JG: He was working at the University, but he was actually working for one of the cancer charities. He'd been working on cancer all that time, yes.

LF: Were there any issues for you around this time, of gender? Were you somewhat unusual being a woman in that sphere, or had things changed at that point?

JG: I always seem to have found myself in a man's environment, and I have to say I actually prefer working in a man's environment. I have trouble with women who get into management and think behaving like a man is the way to

manage things. I actually find it easier to work with men. I have tried to analyse it and haven't got very far with it, but I didn't suffer from it, I definitely didn't suffer from it.

LF: I want to come on to the EA shortly, but for now, you're in Cambridge, 1984 or thereabouts, you've got your PhD, your children were still quite young?

JG: Yes, they were getting older, but, my mother lived with us by then, and so I got a job in civil engineering. The first job was funded by the US Army Corps of Engineers. They'd been dumping waste wherever they'd been, in various parts of the world, and had suddenly woken up to their liability for what they had done. I went into the Civil Engineering Department, and worked on the migration of pollution from sites. And we had a lovely facility, which was a huge centrifuge, underground centrifuge, in which you could build scale models and fly them. And when you flew them at the right speed, or rather g force, the liquid in your models would actually match the parameters of your model, the size of your model, and therefore the whole thing sort of worked hydraulically.

And so I worked on that project and one of the things the chap from the US Army Corps of Engineers proposed, was to have a conference, which they would fund. I organized this conference, and I didn't know many of the players in the field at the time, but I took advice and it was very good advice, and it was through no action of mine, or not due to me, it was an extremely successful conference. And there are people that I invited there that I'm still friends with now. And one of those people ended up being a chap I worked for in the DoE, and I feel quite sure that I got that job because that conference was successful. The job in the DoE came up, and I was informed about it, and I went to an interview, proper civil service interview and all that, and just managed to get it.

LF: Regrets about leaving Cambridge?

JG: I was always going to be second class in Cambridge anyway, as an OU graduate, and probably Oxford too. So I thought, 'Time to go, time to go.' It was a great time and a wonderful, wonderful time for laboratory technicians. We had laboratory technicians in both Oxford and Cambridge who could make anything. I would say I really need a thing like this. It's about this big and does this, that and the other.' And one of them would say, 'And what do you want it made in? Plastic, brass, or steel?' They were just fantastic. And I don't think that happens anymore because those chaps had done all the engineering training they needed to do in the workshops. And it was a wonderful facility and it

enabled you to get on with your work and if it didn't quite work they'd muck about with it for you until it did work. It was a tremendous facility. I don't think it exists anymore.

LF: Why not?

JG: Because youngsters (a) don't get that sort of training in the workshops, and (b) don't stay because they're not valued. You see youngsters start, but they'd only do two or three years and then they moved on. These chaps had been there for an awful long time. It's just different now. Very valuable. In Oxford, our lab technicians actually made one of our mass spectrometers. It was just incredible.

LF: So you decided it was time to move on, and tell me what you did.

JG: So I answered an advert for someone to run the waste research programme in the DoE. It was supposed to be with the relatively new HMIP (transferred to the DoE in 1987). HMIP was the waste regulator at the time. And again, a wonderful time. The civil service at the time looked after you, you didn't go to the Union to moan, you went to human resources (HR) and they sorted it out. Your boss used to get letters saying you hadn't claimed for this and that. It was a fantastic time. And tremendously invigorating doing the work. I took on a £4 million research programme that actually was carried out by four organizations: the Water Research Centre, Atomic Energy Authority (AEA) at Harwell that had two different contracts, and British Geological Survey (BGS). And quite soon I had to nurse them off just getting money to tendering for grants. And that was quite interesting.

There had been 18 months when no one had done the work, so I turned up to quite a mess, and one of the things I was asked to do was to invigorate landfill gas research, because in 1986 a bungalow in Loscoe (Derbyshire) blew up as a result of migrating gas from a landfill site, and that had caused a big stir, and the Chief Inspector had written round to all the local authorities and asked them to inspect their landfills and to check on gas migration. Gas migration was the only issue then (no global warming) and we really hadn't done much, there hadn't been much research on landfill gas. So I picked this up, all round the walls of my office were the reports of research going back into the 1960s, most of it starting in the 1970s. And a wonderful group of people who worked on these programmes. There was a lot of nuclear waste research going on at the time - the last piece of work I'd done in Cambridge was on nuclear waste.

But actually general waste, household waste, is much more interesting than nuclear waste, because you don't know the half-lives of the waste, you don't have anything like the money to encapsulate it.

LF: Sounds like a very good, productive period for you.

JG: Yes, it was great. It was a lovely organization to work for and they took care of their staff. We worked for Jack Bentley who was not a typical civil servant, terribly interested in waste and methods of dealing with it. Jack didn't get on terribly well in the civil service, he wasn't sufficiently conventional, but he certainly looked after us and ran a great team, and was a great inspiration to us.

LF: And you worked there for how long?

JG: Until 1996; it was when the EA was formed and so we were a group, Waste Technical Division, six, nine of us, something like that, providing technical services to the policy people. I started going to Brussels with Jack and negotiating on Directives. I went first to do the Hazardous Waste Directive, and carried on from then, really. And the nice thing about civil service is you'd always train, as you should do whatever you did, so you did courses on how Brussels worked and where the influences were and things like that, and you were prepared for the work you did, and became competent to do it as a result. And going to Brussels was wonderful, and I worked the whole of the way through the Landfill Directive, right from beginning to end, which was 12 years, providing technical advice to policy people. We used to have technical meetings where a lot of the stuff was sorted out, and then went to policy. There were four of us who survived the whole of the Landfill Directive: a German, a Dutchman, a Dane, and myself. We survived all the 12 years [laughs]. And it is ridiculous that it took all those people all that long to provide a Directive that I'm not very proud of now.

LF: Why not?

JG: There are a lot of concepts that are wrong. The European Parliament gained more power, and towards the end had quite a say in what was produced. I was used to giving evidence, or Ministers giving evidence to Select Committees, and when I first started working in the civil service, this was quite a nerve-racking business that was prepared for in great detail, particularly for House of Lords Select Committees who were very well informed. When you get to the European Parliament you seem to be even one step further away from information. So when you produce a Directive you have, I can't remember what the proper term

is, but you have a load of 'where-ases' in the front, and these are sort of the reasons why it's happening. They didn't mean anything legally. And these, more and more, came from the European Parliament.

And things like the banning or the reduction of biodegradable waste to landfill, because of landfill gas emissions, in about 2003, was the time when landfill gas was actually producing more renewable energy than any other source at all in this country, seemed to me to be somewhat uninformed. I know landfill gas is potentially polluting, but the premise that actually all waste management policy must be related to reduction of carbon, greenhouse gas emissions, is absolutely stupid, it's only responsible for four to five per cent of greenhouse gas emissions totally in the world, and four per cent at the moment in the UK. And there are places where you could be making much more significant changes. And the way you make significant changes in waste management is to not produce the waste in the first place, and worry about the materials that are being used, their scarcity. And if you do things up the supply chain, you can have a significant influence on the greenhouse gas emissions. So there was no depth of information from the policy side.

And, of course, when I started there were 11 of us in the EU and we had a really strong alliance in northern Europe with Denmark and the Netherlands and Germany, and a lot of technical work done outside in these groups. But you're negotiating with people who come from such different points of view, and you have to make compromises. So we have a landfill Directive that is actually dry entombment, which is not good for the long-term pollution potential of landfills, comes quite a bit from the Germans and Austrians, who have those sort of requirements and have the legislation to put it in place. And, actually, you watch European civil servants who are responsible for making a piece of legislation, and you turn up at meetings and the Germans say, 'Ah, well we've got this piece of legislation and that piece of legislation and the other piece of legislation,' and you as a European civil servant will think, 'This might not take us as long as we thought.' And what we actually found very often with the Germans is they had the legislation, but they hadn't got the reasoning behind it, and particularly very close alliance with the Danish partners and the Nordic partners about, 'Well, where did these numbers come from?' 'We're not quite sure.' 'Well, we can't accept them if we don't know why they're there.'

But there was quite a strength to that, whereas you see more southern European partners are a lot more casual, and are not going to have defined numbers. And you have to have compromise between all of this. And you get members of

southern European states who appreciate the numbers and think, 'We can go home and make a difference, because we're going to say 'you've got to meet this standard!',' when they don't have anything at home at all and they vote for it, because they think it'll make a difference at home, but they don't actually reason what the numbers mean. So it's always difficult to negotiate and come up with something that is anything like perfect.

LF: So do you think all these Directives, all these outcomes, are the result of lots of compromises?

JG: Yes, they have to be. But I was talking with an ex-colleague recently and saying, 'But it would be an absolute travesty if we came out of Europe, because Europe pushes us to do these environmental things.' They may not be perfect, but they're better than nothing. The Danes are absolutely fantastic in EU negotiations. They're quiet, they're unassuming, but they're very, very sound, and when the Danes have the Chairmanship of the Commission, they produce one or two really wonderful people who make the most wonderful Chairmen, and bring people together beautifully. So we were technically good together, because, again, I say that in northern Europe there's been more thought given to these things than in southern Europe. So we moved from 11 of us to what's 28 now, it was growing and becoming more difficult to reach an agreement. God knows how they reach an agreement in the United Nations. I just can't imagine.

LF: At times it would have been very, very frustrating for you.

JG: Yes. I remember when we were doing the Hazardous Waste list, we were putting together the waste list as a whole and we all had our own particular lists, and so, we all took them to Brussels and the person in charge realized we weren't going to get anywhere, because we were all going to stick to our own teddy bears. And so, I think, did we use a Swiss list in the end? I think we did. And I also remember, we used to have meetings in the various EU countries, technical meetings to sort out the issues. And we went to Germany to do this hazardous waste work, and we got a translator, and the translator was Glaswegian, and I could actually understand more of the German than I did the Glaswegian [laughs].

You just feel so lucky to actually have a say in these things, to work with people that you really appreciated for their skills and their knowledge. Backwards and forwards to Brussels from Stansted Airport, which was a tiny little airport at the time; you used to turn up, park near the shed, go in, show them your passport, and nobody took you out to the aircraft. There were seven aircrafts going to

Europe at seven o'clock in the morning. And you'd just have to go to the bottom of the stairs and shout up, 'Are you going to Brussels?' And they used to say, 'No, this is Paris'. Now you've got the great big terminal and monorail down to where the shed was.

LF: Did you ever find yourself in the wrong city?

JG: No, I didn't. But I did find myself in Brussels thinking, 'Oh goodness, I don't actually know where I'm supposed to be meeting.' You know, it was just so casual and made life actually quite a bit easier, because you could actually go for the day.

LF: Tell me about later on.

JG: Later on, well the EA worked out of London for quite a long time. We actually worked out of the DoE for some time and then got moved to a separate building, but the Chairman of the EA at the time was something big in the West Country so headquarters were going to be Bristol, so that's why I ended up in Cirencester in 1998. It was just an hour's drive, I didn't want to go any further down to the west. Fantastic place to be, an old Roman town, all the roads meet at Cirencester, so great choice.

LF: And how was it for you moving to Bristol?

JG: I have to say, I never really enjoyed working for the EA. We were promised all sorts of things. In Government we had our own budget for which you were personally responsible. It was almost impossible to spend the budget, which was just upsetting. And slowly, slowly, the budget was whittled away.

LF: Impossible to spend it because there was so much red tape in order to release funds?

JG: Yes, because people thought that was the way you controlled budgets rather than giving people responsibility. That was tough to take. Always justifying, justifying, justifying. More and more rules.

LF: What were you called officially?

JG: I was probably Landfill Policy Manager.

I continued going to Brussels for a while in the EA, providing technical help to the people in Defra, and I actually chaired the technical committee that produced the waste acceptance criteria for the Landfill Directive, which was a very interesting time. I was able, with others' help, to actually put together

a suite – not that I wrote them, there were lots of other people involved and lots of other research involved – a suite of guidance documents on landfill gas management, which took me all the time since I was appointed in 1988 to produce, but these were eventually produced before I left.

LF: And when did you leave?

JG: I left in 2005, on my birthday or around my birthday, because being a civil servant I was allowed to retire at 60. So I could escape. And I have to say I couldn't wait to escape. Frustration had built up so significantly that it was good to go, although I worked for some lovely people. But the Agency didn't like centres of excellence; they were rather scary for people who wanted total control and so it was closed down despite being a really valuable part of the Agency.

LF: Is there anything you think you would have done differently?

JG: I would have behaved differently. I go quiet and sullen and you can read all over my face what I think. So I was just uncooperative. I loved the job I had all the way through from the civil service right till I left. The job I was supposed to be doing was the perfect job, as far as I was concerned, except for that I'm not a manager and I used to resent the time that I needed to spend managing people, but the EA didn't make that easy. I had someone who worked with me in Bristol, I had a couple of people in Reading, I had someone in Warrington, someone in Newcastle and team meetings were an absolute nightmare. So I fought the system all the way, because some awful things happened. Waste regulation was really quite good when the local authorities did it. There were some very good people around. They came into the Agency, but they weren't valued. That expertise was undervalued. It was the same as the expertise that was in HMIP. They were paid more than average civil servants because they had come out of industry. They understood industry, they had worked at ICI and they could go into ICI and say, 'Sort that out by Wednesday, or I'll close you down.' Now what do we have? We have graduates straight out of university with a tick box form. Are they going to have the guts to go into a big company, and then say, 'I'm closing you down on Wednesday if you don't sort it out'? All that's gone. We joke about it, but one of the things that happened was the Regular Inspection of Waste Management Facilities, became drive-by inspections. You drove by the front gate and if the front gate was tidy presumably what was going on inside was okay. And you can't, from a technical point of view, you just cannot cope with this. It's laughable, and we still joke about it, because we couldn't accept it as being something that was really happening.

LF: And in 2005, you left?

JG: Yes. I had been teaching here at Imperial, on and off, since Jack Bentley was around. When I first joined the DoE, Jack used to come here and teach waste management, and he started bringing me and then getting me to do it. And so I've had this long once-a-year type connection. And I was also working at Cranfield University, I was a Visiting Professor for Cranfield. And I just started doing more work here, and gradually becoming involved with the waste management bit of the course.

I'm still not totally retired, but that's what's happening, and that's how it should happen. I'm in a little partnership with quite a lot of people, some of whom I knew when I first joined the Department, who were actually part of the programme that I was running, and now we have this little consultancy partnership; it's great fun to still be involved and to be working with people I've known and enjoyed the company of for so long. It couldn't be better.

LF: How do you see the future in this field? You've talked about the political constraints on the Agency and on your work, changes in the inspection regime. How do you see things over let's say the next ten years?

JG: Well, I think things are extremely bad at the moment. The year before last we had a letter from the Under-Secretary of State saying that the Department was insufficiently resourced to carry on with its policy work in the whole area of waste management. And they thought it was okay to leave it to industry. We used to joke about the 'Essex Mafia', but it wasn't a joke. There was a very dubious group of people working in waste management, and when the waste and the money travel in the same direction, there is always a temptation for there to be some unpleasant characters involved. The Big Five companies are over-regulated, because they can be got at and have reputations to maintain, while the rest of the industry, ranges from the excellent to the dubious. So I'm very unsure of the short-term, because I can't see anyone in the Department who knows anything about what they're doing, or getting any advice on what they're doing.

I'm working with Southampton University at the moment on what we feel is an underfunding of landfill aftercare, and however many times we try and contact the people in Defra, they do not seem to understand what it is we're getting at. The red tape I would get rid of is the waste/non-waste issue. There are masses of people working on waste/non-waste and I'm not sure we need waste as a separate entity anymore; let's just have hazardous or nasty stuff to deal with

– now that we've got waste under some sort of control. But of course this is a Brussels thing, and I don't think it's going to change. Some of the regulatory stuff that was taken away from the EA was not a good idea.

LF: And would you say that's politically driven or financially driven?

JG: A little of both, but again, it just demonstrates how little thought there is and how little understanding there is. Lack of funding is really chronic in Defra, but it's chronic in a lot of Departments to such an extent that it's not possible to be productive, because there aren't enough people around to do the job, and they don't understand it. You're going to get a lot of waiting around for decisions and the decisions that are made are not necessarily informed decisions. The legislation on the plastic bags makes me have steam coming out of my ears. We did research on plastic bags and what you should do with them, and demonstrated that charging for them doesn't work. Research work in Ireland demonstrated it wasn't going to meet our needs. But, then, I've spent a good proportion of my life producing the evidence base for waste policy, and it's not even being looked at. We're having policy made on the hoof.

That's very frustrating, but I don't think it can go on. There's going to be one or two really nasty things happening, and it will shake the country up, and we'll have to have appropriate legislation advised by people who know what they're doing. I expect everybody my age feels that way.

LF: I just want to take you back to one comment you made a moment ago. You talked about the Big Five. Can you just name them so we have that on record?

JG: Veolia, Viridor, Biffa, SITA is now SUEZ. And because they're high profile, they have reputations to lose, and the EA find them much, much easier to regulate as a result of that than the smaller companies, who are much more difficult to regulate.

LF: It sounds as if you're saying there has to be some horrendous event before the Departments take this seriously again; a loss of historical memory really and a loss of technical expertise.

JG: All the technical work I've been involved in is there, is available. Before I left the EA, the library had a little spurt of being helpful when it actually offered to make PDFs of things that we wanted more accessible, because everything was in archives. So it's still around. We have it all. Perhaps only 25 per cent of it is of value, but there are still quite a lot of people around who have a much better knowledge of the industry than I do, because I have it from a policy

perspective and a research and academic perspective, which isn't as valuable as having emptied the bins, and worked in the industry, and actually dealt with incinerators and landfills and things like that.

LF: But of immense value. Thank you so much, Jan, it's been fascinating.

Figure 6: Dr John Moore-Gillon

Dr John Moore-Gillon MA LLB MD FRCP (b. 1953) is Consultant Physician Emeritus at St Bartholomew's and The Royal London Hospitals, London. He was Lead Clinician for tuberculosis (TB) for the London Borough of Tower Hamlets, formerly Honorary Secretary of the British Thoracic Society (BTS), Chairman of the Joint Tuberculosis Committee, and formerly Chairman and then President of the British Lung Foundation (BLF). He served as Master of The Worshipful Society of Apothecaries of London (2014–2015).

6 Moore-Gillon, John*

Tilli Tansey: Thank you very much for coming, John. It would be useful to know about your family background, where you come from and how you got interested in science.

John Moore-Gillon: I was born at the London Hospital in Whitechapel so I'm a local boy, and I spent the first few years of my life living in my grandparents' home in Stratford in the East End. My father was just about "middle class". My mother's family were very definitely what's called "working class". My family are dockers rather than doctors. And I think my grandfather, for various family reasons, was a big influence on my life. He had left school when he was 11, but he thought that learning was quite important – he was clearly a very clever fellow and when I look back, I realise just how clever he was and what would have happened if he had had opportunities. I ended up from the age of ten onwards living in Surbiton near Kingston-on-Thames. And, again, with the influence of my grandfather, whose view was that knowledge was important, learning was good, I got into a local grammar school, Tiffin Boys School in Kingston-on-Thames. And there was an inspirational headmaster there who said 'We are as good as anybody here. We can really, really do things.' Quite remarkably, I went to that school with 89 other 11-year-olds, and I went to Cambridge with 22 of them, which was a pretty spectacular achievement, and three more of them went to Oxford.

When I was at school it was pretty much a toss-up whether I did arts subjects or science subjects. There were certain combinations you had to do. So you became a scientist or you became an artist, and we specialised very early. So, actually, 'Am I going down the science route or am I going down the arts route?' – that decision was made at 14. Biological sciences I just found interesting. I could read a biology textbook with my feet up in my bedroom for fun. And so I really found myself heading towards biological sciences. And the school was interesting: at that time it had separate zoology and botany A levels, and was

* Edited passages from the interview conducted by Professor Tilli Tansey, for the History of Modern Biomedicine Research Group, 29 April 2016, in the School of History, Queen Mary University of London. For more details, see 'Related resources' at the end of this volume.

probably one of the last schools to offer a separate botany A level. And, again, inspirational teachers in zoology and in botany and in chemistry, which I was okay at but not brilliant, led me to do all right. It was actually only about three or four weeks before my A levels I thought, 'What am I going to do with this?' And I suddenly had an idea, 'Well, why don't I become a doctor?' At that time you had to have physics A level to get into Medical School, and I wasn't doing physics. So I did my A levels, took the Cambridge entrance the following term and I stayed on at school for two more terms just to cram for physics A level. I'd got my place at Cambridge to read natural sciences if I didn't have physics A level, or medicine if I did have physics A level.

TT: How did your family react to having this very bright, academic child going through the school so well, and then deciding to be a doctor?

JMG: They were very pleased. I was in a family where learning was good, and doing well was cool. I was also lucky to be in a school where doing well academically was cool as well. You weren't laughed at for being a swot if you did well, and there were lots of other boys doing academically well there. So my family were really very pleased, and I think for my grandfather, who was a retired docker, to go into his general practitioner (GP) in Stratford and say 'Oh yes, my grandson's doing medicine at Cambridge.' I think he felt pretty good about that.

TT: How far along your career did your inspirational grandfather see?

JMG: He saw me qualified. He came to Cambridge and saw me there, and he saw me qualify, but only just. I'd been qualified about four weeks when he died, so he knew that I was a doctor, but he never saw me practising after that.

TT: You get your physics A level, so you go to Cambridge to St Catharine's to read medicine. Did you do natural sciences as your Tripos?

JMG: Well, it was the medical sciences Tripos, but in those days it was very rigidly academic. For people who wanted to do medicine, it was a slightly sterile way of learning. On the other hand, you do get the basics hammered into you in a way which sticks and is useful. So we did anatomy and physiology and biochemistry for a couple of years, then I did my Part 2 in pathology.

TT: Were you a bit resentful of all this science, you really wanted to get to medicine?

JMG: No, I didn't feel frustrated because I didn't know any different. If I'd been through a London medical school or anywhere else, all the way through then you'd see the people and meet the people walking around in their short, white coats and think, 'I'm desperate to get there.' So I didn't know any different.

TT: Do you think in hindsight that having a really high powered, intense, scientific education was beneficial to you as a doctor?

JMG: I don't think it taught me academic rigour. I think there are probably other influences which do that. I don't think that 18-year-olds are really capable of being taught an academically rigorous approach. I think it's better taught now, actually, than it was then. The benefits of the rigorous approach are that it does teach you that sometimes there's only one way to learn something, and that's just to plug away and learn it. I was not taught to think, at least at that stage. But clinical training was a bit different.

TT: Can I just ask you about going to Cambridge; you don't have a history of university in your family. How did Cambridge impact on you?

JMG: Well, I went when I was too young, that's the first thing. I was 17½. And I think I missed out on a lot. I was too immature to cope with other people, not with Cambridge, to cope with other people really. I could have done better had I had a year of kicking around the place. I had a great time, but my really lasting friends are not from there. My really lasting friends are from my time at St Thomas' doing my clinical course.

TT: That was a traditional route wasn't it, to go to London for clinical training?

JMG: Indeed. I'm very pleased that we couldn't stay in Cambridge then, because I rather like the status quo and take the easy way out, and I would have said, 'I've had a great three years in Cambridge; I'll stay here.' As it was I left and had a better three years in London than I'd had in Cambridge.

TT: Did you specifically choose St Thomas' or was it a tradition?

JMG: No, I had chosen St Thomas' as my second choice after Cambridge when I applied to University. Halfway through your second year in Cambridge you then organise your clinical and so I wrote to St Thomas' and said, 'I'd quite like to come.' I thought they'd write back and say, 'Oh, yes of course.' I was rather put out when they said, 'Come and have an interview.' [Laughs]. I went for an interview there on a Friday and got an offer the next day.

TT: Moving to London, were you able to live at home?

JMG: I was able to live at home, but of course I didn't want to live at home. My parents didn't want me to live at home because they thought it was important that I be mixing in with all the other students. I lived at home for about four or five months and came in on the train from Surbiton to Waterloo, but there were very many nights when I either got in at two in the morning or didn't get home at all, and stayed on friends' floors and so on. And then I found a shared place to live, and spent two years living the usual sort of grimy student life, and then my last year, living in student accommodation above the bar at St Thomas' Hospital.

TT: How did you take to a London Medical School?

JMG: I really, really loved it. I think that one of the things which astounded me after three years at Cambridge, where, if I wanted to take a woman to a ball, I had to import one. All of a sudden there were loads of ladies around. St Thomas' was fantastic in that there was a huge amount of vertical integration, we were just all mixed up and down, including the junior staff and the Consultants. At the end of the day the Consultant Surgeon or the Professor of Medicine would go to the students' bar with the Registrar and with the Houseman and with the students on the firm, and just chat. That was a fantastic strength of St Thomas'. We really felt part of a family. I had a wonderful time, it was really great.

TT: Were you already thinking of a particular specialty?

JMG: The only thing I knew was that I didn't want to be a GP. And I didn't want to be a surgeon. So I knew I wanted to be a physician very early on once I was at St Thomas' – probably before. But what the field was going to be, I had no idea at all.

TT: How did you decide to do your house jobs?

JMG: You were allocated the house jobs. You could sort of express an interest. The bright boys did the Medical Unit job; I didn't get one of the Medical Unit jobs. They were allocated before finals, and it was a little bit embarrassing, because one of the people who got the Medical Unit house job actually failed his finals and had to rush off and do the Conjoint very quickly. And I, much to my surprise and astonishment, had done quite well in my MB. I got a starred distinction in Medicine, so I was in the top two per cent of my year of 220 Cambridge students. It's like an acclamatory First. And there was a little bit of shuffling of feet, because I hadn't been given a Medical Unit job, well, but

it suited me all right [laughs]. I did cardiology and it was great, a really good grounding. I had a really enjoyable time, if a tough time, but intellectually and academically it was interesting in the Cardiac Unit at St Thomas'.

St Thomas' had an interesting ethos about medicine. There was a culture that you stood back and thought, as opposed to just going in guns blazing, doing dozens of tests and making snap decisions. And I suppose in terms of influences, the St Thomas' approach to doing things is something which has stuck with me.

My second house job was general surgery in Kingston.

TT: And at this stage are you still open to…?

JMG: I'm still an undifferentiated stem cell at this stage.

TT: So where do you go next?

JMG: I applied for the St Thomas' Intensive Therapy Unit (ITU) job on a ward called Mead, the Mead job. That was a very, very, very tough job indeed. You had to stay on the ward when you were on call, so you'd walk through the door of the ITU at nine o'clock on a Friday morning and leave at three o'clock on a Monday afternoon. And eat on the ward and sleep on the ward. But I was taught clinical physiology, how the body works, by Ron Bradley, the ITU Consultant. And Geoffrey Spencer, an anaesthetist, ran a Chronic Respiratory Failure Unit on Phipps, which was at the Southwestern Hospital and you did four months on the Mead Unit and then two months on Phipps. Geoffrey had inherited a group of polio survivors in iron lungs. He was absolutely brilliant at getting people out of this Unit and into their own homes on home ventilation. People had iron lungs in their own home, and they were extraordinarily inspirational people. So there, on the Mead and Phipps Units, I got a feel for clinical physiology, and a feel for clinical physiology as it applied to respiratory medicine – as it applied to the lungs. I began to be taught that the lungs are by far the most important thing – the heart just pumps blood around the body, and that's all very dull, but you know the lungs are the really important bit! So that was a steer.

TT: Can we just put a chronological marker on this?

JMG: So I qualify in 1976. First job is August 1976 to January 1977. Second house job is from February 1977 to August whatever it is, 1977, and then straight into St Thomas', onto the Mead job. And I did my Part 1 Membership of the Royal Colleges of Physicians (MRCP) during that job; you could do it 18 months after qualifying and I thought, I'm not doing anything else other

than work and it was also quite close to finals. I hadn't forgotten everything from finals at that stage and it seems to me that the Part 1 Membership was the knowledge you needed for finals and a bit more, and if I left it for another six months or a year I would have lost half the knowledge I'd got for finals. So I did my Part 1 and then I applied for the professorial Unit at the Brompton as my second Senior House Officer (SHO) job with, Professor, now Dame Margaret Turner-Warwick, who was a hard but kindly task master, mistress, at least to the House Officers. So I found myself in my second house job, this is now February 1978, just 18 months after qualifying, and there were 11 or 12 SHOs there and all of them were actually six months ahead of me, and they were all doing their Part 2 Membership. At that time once you got your Part 1, you could do your Part 2 at any time. So I thought, 'What have you got to lose but your self-respect, the esteem of your friends and 400 quid?' [laughs]. I had a go at the Part 2, which I was very pleased to pass, which was nice. So I then found myself an MRCP.

TT: You got both your Part 1 and your Part 2 first go?

JMG: Yes. And in fact the Part 2 written was only about ten weeks after the Part 1 at that time. Lots of people did their Part 1 after the 18 months, the minimum, because, as I said, it seemed sensible if you still knew your Finals stuff. But it was just that I found myself with lots of other people doing the Part 2 and I looked at the regulations that said I could do it, so I did.

TT: You were certainly young when you got your MRCP.

JMG: I was 25, yes.

TT: You're already veering towards respiratory medicine?

JMG: I went back to Kingston as a Medical Registrar in August/September '78, working for a fantastic chap called Bill Medd who was a General Physician with an interest in cardiology, and it was really a tough rota, general medicine, lots of responsibility. I think we took on responsibility in those days in a way which would be horrifying now, and probably rightly so. I mean, you really weren't expected to ring the boss. When I was on the ITU at St Thomas' there was cover from the Consultant at home at weekends, but there was no Consultant ward round. As the SHO, 15 months' qualified, you had the ITU patients. We had a fire at St Thomas' when I was on the ITU; and with the staff nurses I evacuated the ITU – ten ventilated patients – and the smoke was really thick in there, it was really not at all nice. We evacuated the ITU at about two in the

morning one Sunday, and at the end of it the Senior Staff Nurse said, 'Do you think we ought to tell Dr Jenkins?' who was the Consultant on call. I said, 'Yes, we probably ought to.' And I rang him and said, 'We've evacuated the ITU,' [laughs] and he said, 'What?' We'd shipped them all across into the North Wing theatres recovery room; about eight, nine, ten ventilated patients.

TT: What responsibility for a young SHO.

JMG: Everyone had it, you know, that's just the way it was and you did it. Unfortunately mistakes were made, and getting that balance right between making a decision because you've got to, and someone suffering because you've made the wrong one and you're only just on your learning curve, well, that's a difficult balance to strike. Naturally, I think that we've gone too far the other way now, but I would think that, wouldn't I?

I found myself at Kingston and because I'd done this quick short circuit, I found that I was the Registrar and my SHO had been the year above me at St Thomas', which was fine; she was very relaxed about that. But I arrived as a Medical Registrar, having never done an outpatient clinic and, for example, I'd never prescribed something simple like a diuretic for hypertension. But what the Mead job did do, was it meant you weren't scared of medical emergencies because for instance you ran your own crash calls (cardiac arrest procedures) when you were an SHO and so on. I turned up working for Bill Medd as the Medical Registrar at Kingston, and nothing was scary in Accident & Emergency (A&E), because you'd been dealing with acute emergencies in critically ill people before, so that was an advantage, but I was profoundly, profoundly inexperienced clinically in other ways.

TT: So you were still on quite a sharp learning curve?

JMG: Very much so. Oh gosh, yes. And I did that from summer 1978 to summer 1979, then went back to St Thomas', because it was a rotation between Kingston and St Thomas', and did a gastroenterology firm, because don't forget again we're still undifferentiated Medical Registrars.

During that time I think I decided that respiratory medicine was really, really what I want to do. I went onto the Medical Unit, I worked for Ian Cameron doing respiratory physiology, and my studies at that time were in hypoxia, particularly at night, and the investigation of sleep disordered breathing was just starting at that time. We knew if people got a low oxygen at night, the lungs change, and particularly the vasculature in the lungs changes, so the pulmonary

blood vessels become constricted. You get a change in the pulmonary arteries and arterioles and the right ventricle gets bigger. And the question was, how long do you have to be hypoxic for to get those changes? The conventional wisdom was you had to be hypoxic all the time. And I think if I've ever made one discovery or had one insight, it is to think to myself, 'Well, you don't have to be in the gym 24 hours a day to get big muscles.' You just need to have the stimulus to muscle growth switched on, every now and again and then they'll carry on growing.

I studied this in rats in a hypoxic chamber and showed that you only really need to be hypoxic for two hours a day in order to switch on the muscular hypertrophy and the permanent changes. We also knew that if you are short of oxygen then the blood count will go up. It's a mechanism rooted in our evolution – because the usual reason for lack of delivery of oxygen to the kidneys, where oxygenation is sensed, is haemorrhage. Of course, it's a mechanism rooted in our evolution – because the usual reason for lack of delivery of oxygen is haemorrhage. So, from an evolutionary point of view, if you have a drop in oxygen delivery, it's because you've lost blood therefore you must make more blood. We also know that people up high mountains will get polycythaemia because they are chronically hypoxic and we know people with lung disease or chronic obstructive pulmonary disease (COPD) get polycythaemic. But how much hypoxia do you need to switch on polycythaemia?

Again, we found that we could make rats polycythaemic with two hours hypoxia per day. And we then used a very new piece of kit, the ear oximeter – I had the second oximeter in the UK. Now I've got one that I bang into my pocket and it's less than the size of a matchbox. Will posterity know what matchboxes are? They probably won't, will they? Anyway, it costs about £150. The one I had in 1981 weighed 40 kg and cost £20,000. We looked at oxygenation overnight in people with unexplained polycythaemia, and we demonstrated that intermittent hypoxia occurring at night, could explain the polycythaemia in some people. So the animal work tied in really very nicely with the clinical work. And my MD was on intermittent hypoxia.

TT: I wanted to ask you a further question about the oximeter. Who paid for it? Were there Medical Research Council (MRC) grants?

JMG: St Thomas' endowments. I was funded for a year in the first instance and then for six months more. The funding was not there, for the amount of work that was needed for an MD. My MD was 70,000 words and a number of years

of very hard work, and I didn't have the funding for that length of time. I got to the end of my 18 months lab research and I was then unemployed. There was a terrible, terrible problem with career progression in respiratory medicine at that time, and I walked out of the laboratory with no job. It was when mortgage rates had just tipped 14 or 15 per cent in 1981. I spent about ten months doing Locums here and there and then I got a job as the Locum Chest Registrar at St Thomas', which suited me pretty well. But for ten months essentially, like many other people, we lived hand to mouth.

TT: And can I just ask, your personal circumstances?

JMG: I was married but no family yet. I married in 1980 and we had our first child in 1984. It was challenging and uncertain at the time.

TT: Were you demoralized, were you thinking, 'Where am I going to go?'

JMG: I was certainly thinking, 'Where am I going to go?' and I began to think about manpower and realise there was no planning whatsoever in respiratory medicine, and indeed in most other fields. I applied for lots of Senior Registrar (SR) jobs; I think I got the thirteenth SR post I applied for. I was working my way through the system because there were senior people ahead of me waiting for SR jobs. Remarkably the SR job I got at the London Chest Hospital had to rotate into a hospital where they had some general medicine as well and the link was with St Thomas', which was fantastic. So I then found myself doing a year at the Chest and a year at St Thomas' as a lecturer on the medical unit, six months of which was back in the laboratory finishing my MD, so it was all really very fortuitous.

TT: So now you're back on track to becoming a chest physician. You've got this great rotation and an MD so now you're looking for Consultant posts?

JMG: The difficulty was the career structure that I was talking about. With three other SRs we said, 'Look, this is a complete shambles. There are people kicking around the place not knowing whether they've got a career progression or not.' We decided to do a survey: there were over 60 people who had completed research and had or were about to have an MD or a PhD looking for SR posts, and there was only one planned Consultant vacancy in England and Wales. So we put together a paper, the four of us, Andrew Peacock, Ashley Woodcock, Ian Johnston and myself, and we submitted it to the BTS saying we wanted to present this at the summer scientific meeting. We had a lot of trouble getting it on to the programme, and the BTS wouldn't publish it, we submitted to the

British Medical Journal (*BMJ*) instead, and the *BMJ* published it as a letter. Then I got a phone call. The secretary at the London Chest said, 'A chap called Batten telephoned.' [Laughs]. I said, 'What? You mean Sir John Batten?' I rang him back and sort of stood to attention. He was President of the BTS at the time. He said, 'This manpower business, it's very important, isn't it? 'Come along and let's just chat about it.' And he set up a Manpower Committee at the BTS and I was the SR Representative. That Manpower Committee is why respiratory medicine for the last 15 to 20 years has had better manpower planning than any other speciality, because we were in such a dire mess that we thought that we'd never get ourselves out of it.

The BTS Manpower Committee did a survey, and discovered that in the next two years there were going to be nearly 30 retirements of single-handed respiratory physicians in District General Hospitals (DGHs) who were not going to be replaced. The strategic plan for Southwest Thames for 1985 or 1986 said, 'It is envisaged that chest medicine will cease to exist as a separate speciality and that patients will be looked after by Consultants in other disciplines.' When it came to Consultant posts, there were some posts not thought of as being terribly desirable, where the conditions were appalling, and where they were appointing just a single-handed person, and yet there would be 20, 30 applicants. There would be 20 people with MDs or PhDs being shown around in job lots, a dozen in the morning and a dozen in the afternoon, because the competition for Consultant posts was so intensive. We lost a lot of people to the pharmaceutical industry, to Australia, to the USA, because they simply could not get posts. People thought about retraining, lots of people went into radiology. Then radiology very properly said, 'We quite like people who want to be radiologists in the first place, not people who are radiologists because they couldn't get a job in respiratory.' A lot went into care of the elderly and there was a huge attrition amongst SRs in chest respiratory medicine.

TT: Why had this happened? Why had there been the move to say, 'We don't need chest Consultants?'

JMG: Well, essentially it's TB. TB was perceived to have gone away because you could treat it. People who had COPD; the view was, you couldn't do anything for them and it was their fault anyway. And pneumonia is easy, you give them antibiotics; and for asthma, well, you have a puffer. So what's difficult about that? We don't need chest physicians. When the National Health Service (NHS)

came along there was a lot of snobbishness towards people who had come up through the old TB service. At St Thomas' there was a divide between the Chest Department and the Medical Unit which did respiratory research.

TT: How influential could manpower planning within the BTS be on its own?

JMG: It took quite a few years. It coincided with the beginning of the BLF, set up primarily by Malcolm Green, to support respiratory research. The BLF – the charity raising funds, as opposed to the BTS, the professional body – was farsighted in that it got PR on its side very early. Malcolm interested someone who had their own PR company, and it began to be on the media, 'Lungs are important, chest disease is important.'

TT: Did smoking, and concerns about smoking, interact at all with this?

JMG: It did, it did. But you had to tread terribly carefully – you weren't allowed to say in those days that smokers were addicted, that was a very pejorative term. Raising money for respiratory medicine is very difficult, as was getting a decent career structure. Respiratory medicine is now under-resourced, but most DGHs have got four or five respiratory physicians as opposed to the one or even none that was being proposed just 30 years ago.

TT: Coming back to your own career. You are an SR, and you've been involved in this manpower survey for the BTS. Where do you go from there, John?

JMG: I'd got the MD by this time, but it didn't come until three or four years into being an SR, because I was doing all sorts of things. I happened to see in the *BMJ* a job advertised; a Senior Lecturer post in Respiratory Medicine at Barts and Homerton, which was wholly unexpected, and I got it the following month.

TT: Were you based at Homerton or Barts, or both?

JMG: I was based at both. Homerton was built as 'a wing of Barts'. Every Consultant at Homerton was also on the staff at Barts. It was Barts, but it was three miles down the road. It was a very far-sighted move, because it had been quite difficult to get people to apply for DGH jobs, particularly in inner cities, but what you were applying for was a teaching hospital job, which was in an inner city.

TT: You had a Senior Lectureship and an Honorary Consultancy. Who were you responsible to and who were your colleagues?

JMG: Ultimately, my boss was the Professor of Medicine, John Dickinson. Lesley Rees became the Dean, and I'd been there about three years or so and said, 'Look, Lesley, I'm doing a bit of research, I'm turning out the odd paper, but I'm never going to build up a big basic science research base. I'm very, very busy clinically; I'm interested in clinical research; I'm interested in teaching; I'm interested in helping to run the Medical School, and I think I'd rather be a Consultant Physician and Honorary Senior Lecturer than Senior Lecturer and Honorary Consultant Physician, because I think it better reflects the way that I work.' So, after discussions, that's what happened.

TT: We are now coming into your own independent career and things like asbestosis, TB.

JMG: During my time as an SR at the London Chest, Robin Rudd was a Consultant there and Robin was a phenomenon. He started doing medicolegal work and got involved in occupational lung disease. Historically, asbestos has been a tragically important part of the East End, because it was all imported through the London docks, and the dockers got horribly exposed to asbestos. Lots of the asbestos processing firms were East End originally and laggers, the insulation industry, was a family business. Lots of the major lagging companies, who did the lagging all around the country, they were Eastenders, the workforce with a very heavy burden of asbestos. There was an awful lot of asbestos-related disease and lots of the early research on asbestos actually came out of the London and the London Chest.

It was a seminal paper in 1965 from the London Hospital by Newhouse and Thomson which demonstrated that there was this newly emerging tumour, mesothelioma, which people realised was not lung cancer, but affected the pleura. It could not only be caused by asbestos – that had been established a few years before – but by low doses of asbestos. The way that they realised that was because they were getting women with mesothelioma. Her husband's a docker, he comes home, she shakes out his overalls and so the asbestos fibres come from there. And so, there was a history of asbestos-related disease in the area, and Robin got involved in it and began to do some medicolegal work and said to me, 'There's too much of this, why don't you start doing some?' So as soon as I became a Consultant, I began to see the odd case and provide expert witness reports for the court, rather amateurishly, and learning on the job.

TT: And this was simply through asbestosis in the first place?

JMG: Yes, asbestosis and mesothelioma. And I suddenly realised I was seeing a lot of TB. At the same time I moved into the Barts and the London and the London Chest Trust as Clinical Director of the Department. At the London and London Chest there was not only a tidal wave of TB, but an increasing tidal wave of TB. And that's really how I fell into TB as my major clinical work, and to some extent academic interest.

TT: Can we just put a chronological marker on this?

JMG: I was appointed at Barts and the Homerton in 1988 and I moved full-time into what was called the Royal Hospitals NHS Trust in 1996, and the TB service was based primarily at the London Chest.

TT: Was that an old TB service that had continued?

JMG: It was. There were some extremely experienced doctors who had come from the old clinics and were fantastically knowledgeable about TB. Bill Wheeler, Freda Festenstein and Barbara Hanson, there were three of them. I realised that we were seeing more and more and more TB, and I became aware that just as manpower planning in respiratory medicine had been ignored, so it was the case with TB. People thought 'That's dealt with, that's cracked!' I'd learnt a few PR tricks from my involvement with the BLF and we began to make noises about TB.

The Department of Health did not like it at all, because of the stigma associated with TB. TB is a disease of the poor and it is a disease which, in recent years I should say, has primarily affected the immigrant population. And the Government did not want any noise about a disease coming back which affected the poor, and which affected immigrants, and we hit an awful lot of resistance. We published a paper in the *BMJ* which looked at TB rates and measures of social deprivation, and showed that the correlation was absolutely extraordinary. TB rates in the highest, in the most deprived areas, were ten times higher than in the least deprived. A Health Minister came to visit Homerton when I was still there, and I said, 'The poor are getting poorer, Minister. In fact, we're publishing something quite soon about deprivation.' About two hours later there was a phone call from the Department of Health saying the Minister wanted a copy of the paper. I said, 'Well, it's not published yet. If the Minister wants to talk to me about deprivation and TB, I'm very happy to sit down over a sandwich and talk about deprivation and TB, but you aren't seeing a copy of the paper.' That was very, very unpopular. It also got to the stage where the Government, and the Public Health Laboratory Service (PHLS) as it then was,

weren't allowed to comment on the fact that a high proportion of people with newly diagnosed TB had been born abroad. And I, in more than one interview, have been asked, 'Are you frightened of being called "racist" for discussing the fact that TB rates are highest in the immigrant population?' And I said, 'It's the opposite of that, because you wouldn't be called "sexist" if you said that men are more at risk of heart disease than women. You wouldn't be called "ageist" if you said that cancer rates are higher in the old than they are in the young. What you're doing is identifying where you've got to put the resources to help people who are at most risk. So if you are saying you're not allowed to say that it's people in migrant groups who are at greatest risk and thereby you withhold from them the resources which are needed to sort out the problem, that's what's really racist.' But it was a very, very hot potato.

TT: How was your message being received and how has that changed?

JMG: It's changed a lot. There was discomfort at the top of the Department of Health, and particularly the politicians in the Department of Health. The message was warmly received amongst the Medical Advisors to the Department of Health, because as an outsider I was able to say the things which they couldn't actually say. I wasn't beholden to anyone. I'm not looking for research grants, I'm not looking for a Government post, I'm not looking to become Advisor for this or that, and so it's open to me to say what the problems were. So the message was received well by the doctors, but not politicians. Whether there was any action was another matter.

Eventually after years of bashing away, a report came out called the 'TB Action Plan'. I went to the launch of it and the thing which worried all of us was it was aspirational rather than target-setting. I had spotted that inside the front cover, like every Government publication it had the usual standard information: "origin" then "signed off by" then there's a reference number, and then an "action required" box. I spotted this inside the cover and it said, 'action required - not applicable; N/A.' And so at the public launch of this document I said, 'Well, this is very, very nice, we've been working jolly hard at this TB action plan, but I do see inside the front cover it says 'action required – not applicable,' and I hope that's not telling us what's going to happen to this.' And actually nothing did happen for another ten years, but it's changing now.

There's now a powerful group of academics and clinicians working away at TB in a way which is gratifying, but there's still nothing like the research spend there should be.

I find myself horrified by having a ward of patients in the Royal London with spinal TB, TB meningitis, cerebral tuberculomas, renal TB. This was history when I was a medical student, but there they were again 30 years later. In the twenty-first century it's scandalous that in London we have a ward round where every Wednesday afternoon we'd go round the neurosurgical wards and the orthopaedic wards and the renal wards looking at people with cerebral TB and spinal TB. Those were cases which didn't exist in the 1970s.

TT: From the resurgence of interest in TB and the recognition of the problem, was there any direct association with concerns about AIDS (acquired immunodeficiency syndrome) and comorbidity?

JMG: There was a lot of concern, but in the early days of the research into TB it was shown very convincingly that the big increase in TB in this country was not AIDS-related, it was quite simply that we had lots of people developing TB and that methods of screening for TB were not effective, and that it was being inappropriately treated. Now it is a significant issue and one of the things we did was to set up the very first joint human immunodeficiency virus (HIV) / TB clinics, because HIV drugs are very difficult, and the TB drugs are very difficult, and the TB and HIV drugs together are very, very, very difficult. We were fortunate at Barts and the London that we had respiratory physicians interested in TB, and HIV physicians that were receptive to our involvement. It doesn't always happen and there were Units around the country where the respiratory physicians were treating the non-HIV-TB and the HIV doctors were treating the HIV-TB. The case now that a significant amount of TB is HIV-related. It's now routine, that every patient who is diagnosed with TB gets an HIV test as well. But that took a lot of political battling as well.

TT: Political battling by whom?

JMG: A lot of the resistance came from the very first generation of HIV doctors who, because HIV was a death sentence, having a diagnosis of HIV was something which was incredibly important And therefore the implications for your life of having a positive HIV test were really quite extraordinary – lots of anxieties, talking about life insurance and health insurance, and so on and so on. So destigmatizing HIV testing has been much, much easier and now it's the expectation that if you have TB, you have an HIV test. It's become everyday.

TT: You've spoken quite warmly and enthusiastically about Barts and the London. When you became a full-time Consultant and Head of the TB service, was that more administrative, was it still very hands-on?

JMG: Oh no, very hands on. Absolutely no one else to do it [laughs]. In fact we were overwhelmed with work for the number of doctors there were and I was very lucky that we appointed Malcolm Cocksedge as our Lead TB Nurse. Malcolm had been a Nursing Manager at St Mary's and had done HIV. Malcolm was the crucial way into the HIV Department, having been an HIV Specialist Nurse himself, and so really the links were forged at nurse to nurse level administratively. But I was very hands on seeing huge numbers of patients in the clinics, seeing patients on the ward rounds, and so on. And we developed a seamless nursing service, where an inpatient would see a TB nurse. Then when they were an outpatient, they'd see a TB nurse, and then in their own home they would see a TB nurse – and they'd all be the same person, the same nurse. There'd be three nurse-led clinics a week, and then consultant clinics running side by side with them, so the nurses could bring in the difficult problems; we set up nurse-prescribing and nurse-dispensing as well, because we managed to get the funding to get the drug budget into the hospital. Because TB drugs come in funny shapes and sizes and funny dose combinations; high street pharmacists are going to get it wrong and GPs are certainly going to get it wrong. That's not a criticism – it's just an observation because, why should they get it right? They're only doing it twice a year.

TT: Could we just discuss the impact of drug therapies over your career?

JMG: Before I became a Consultant, looking after TB as an SR, rifampicin, was the real game-changing drug. Short course chemotherapy had come in and we were just realising that pyrazinamide, which had been around for a good long while, gave terrible liver damage because we were using too high a dose. Trials were done by the BTS showing that if you used pyrazinamide with three other drugs for the first two months in the appropriate dose, then you could treat and cure TB in six months. So we were using short course, what became known as ultra-short course chemotherapy; that is six months. There were remarkably few changes unfortunately because there's no money in developing drugs for TB. So we were playing around with drugs which had been around pretty much for decades, and using them in different combinations – but these were drugs which had been developed for other reasons. We also found ourselves going back in history and we were getting old drugs out from the back of the metaphorical medicine cabinet, for use in the increasing numbers of drug-resistant TB that we were seeing.

We found that at Barts and the London we were at one time looking after a third of all the multi-drug resistant TB (MDR-TB), in England and Wales. We're still talking about 25 patients or so a year, 20 to 25 a year. But also because we had a Neurosurgical Unit, and because we had very good spinal surgery, we were getting complex MDR-TB, with cerebral MDR-TB and spinal TB. Finally, because we had a negative pressure isolation unit on site at Barts, we could take the infectious pulmonary MDR-TB. I think that probably somebody took a strategic decision, let's try and build up an Infectious Diseases Department. There was a directorate of infection and immunity. It was largely HIV money funded. There were so many stories we heard, of people with ordinary TB not getting fed over the weekend in other hospitals, because the usual staff weren't there and no one would go into the room to hand them their meal tray, or the room not being cleaned for three months, that sort of thing. At Barts we were very lucky in that the nursing staff were used to and comfortable with dealing with MDR-TB. So you would have a cleaner who would happily put on the high efficiency mask and all the space suit kit and go in and hoover the room and go in and chat to the patient with the MDR-TB, and that was something which really wasn't around in other Units. In consequence we got more referred to us.

TT: Have you ever been scared yourself?

JMG: No, I never have been, and I'm not because I understand TB. It's quite hard to catch TB. I also reflect when people talk about MDR-TB and XDRTB, extensively drug-resistant TB, and totally drug-resistant TB, that all they're describing is what all TB was until 1946, when streptomycin came along. There were no drugs for TB so everything was completely drug-resistant. And our senior colleagues, doctors and nurses of the past, managed to look after these people in a perfectly civilized way, and a humane way, yet all of a sudden now that we have got drugs to treat it, we've become hysterical about infection risks.

TT: We haven't really talked much about your legal work, which is a very different aspect.

JMG: I do expert witness work and, essentially, most of the medicolegal work doctors do is alleged professional negligence. The sort of thing that I'm doing is different: here is someone who alleges he has occupational lung disease. Has he got it? Was it caused in the way that it was thought? How damaged is he? And what are his prospects for the future? And that's what the court really wants to know. I've done that primarily in asbestos-related disease, but also

in occupational asthma, and silicosis and coal mining-associated diseases and so on. I've always been very rigid about doing 50 per cent claimant, 50 per cent defendant, because what most people don't realise is that the doctor's job is not to fight one side of the case or the other. The doctor's job is to assist the court in coming to its decision. And you can be terribly badly criticized, indeed publicly by a judge, if there's any hint that you've tried to put a positive spin on the case for your side. I've also been heavily involved in the consequences of work showing that coal mining didn't just cause coal workers pneumoconiosis, but caused COPD, that is, chronic bronchitis and emphysema. I advised the Department of Trade and Industry (DTI) on setting up the compensation scheme and on various medical aspects of handling it.

At about the same time as the coal miners' cases I found the University of London external degree and the LLB programme. I signed up in 1997 and got an LLB in 2003, which I don't discuss or put on my reports because judges want expert doctors and not amateur lawyers, and I have no professional qualification. But it did give me an insight into the way that lawyers think, and it gave me an insight into the difference between legal and medical reasoning.

TT: The other thing I wanted to ask you about was international aspects, particularly with the TB work.

JMG: Internationally it's been quite interesting talking to colleagues from other countries, and colleagues in this country whose role has been international. They've gone out and dealt with TB in other countries. I was talking to a South African colleague where they have huge numbers of cases of MDR-TB, and I said to him, 'Well, I'm lucky because I've got small numbers and I've got resources. You've got huge numbers and scarce resources.' He said, 'Yes, but the bar's set at different heights for the two of us, isn't it?' And I reflected on it and I thought, 'He's actually right.' If he has a 20 per cent mortality, then he's doing pretty well. If he gets transmission within the hospital – well it's a pity but it happens. If I lose a single MDR-TB case it's a disaster. And if there's a case-to-case transmission, the *Daily Mail*'s saying 'Killer Bugs Stalking our Streets.' So the bar is set higher for those people who are fortunate enough to have the resources. I think that it's true of all medicine; that you have to perform at a level appropriate to the resources you have.

I've lectured abroad a fair amount, explaining TB to audiences that didn't really understand TB, I think that explaining how TB ticks is something that I became reasonably good at, teaching students and postgraduates in this country and elsewhere about TB, which is actually quite complicated when you try and learn it

from books. With most infections, most bacteria, you get sick and you die or you get sick and you get better, with or without treatment. But if you take things like TB and leprosy and parasitic infestations, it's really pretty tricky to understand the natural history of the disease. I've not had a big international role at all.

TT: You haven't been involved in, say, the World Health Organization (WHO)?

JMG: No, I know all the people in the WHO in the field, because we've shared platforms lecturing around the place on many, many occasions.

TT: And the final thing, John, I want to ask you about is the Society of Apothecaries, of which you are a former Master. Could you say something about your involvement?

JMG: I got involved in the Apothecaries in 1983 via an old friend at St Thomas', and her father had been Master of the Apothecaries and she said, 'This is good fun. You pay a big whack of money, but once you've paid it all off you get a free dinner every year for the rest of your life'. Then shortly after I became a Consultant at St Thomas' William Shand, a surgeon there, who was senior in the Apothecaries, asked me if I would read a lesson at the carol service. Then I went to a couple more things and eventually I got onto the Court in about 1999. At the Apothecaries, if you're on the Court then, provided you contribute and really get involved, the expectation is you'll become Master in due course. I put myself forward for election and was Master from August 2014 to August 2015. It was very hard work – there's lots of eating and drinking to be done, but there's lots of committee work, and the Apothecaries are important because they still do have a professional role.

We are still involved in training and educating and particularly examining. We have seven postgraduate diplomas, but we no longer award our registrable qualification which enabled you to register with the General Medical Council (GMC) as a doctor. When I qualified, lots of people taking their finals would take the Apothecaries exam as well because if they failed one or other of them, you still had a registrable qualification. If you passed one of them, say you failed your University of London finals but you passed the Apothecaries, you could wave your Apothecaries certificate at the GMC and start on your house jobs. But that changed. But we have postgraduate exams, some of which are purely for people medically-qualified and some of which from people who don't necessarily have a medical qualification. And we are flourishing academically

TT: This has been a fascinating interview – thank you so much John.

Figure 7: Professor Andrew Nunn

Professor Andrew Nunn (b. 1943) has been working in clinical trials and epidemiological research since 1966, when he joined the MRC Tuberculosis & Chest Diseases Unit as a Statistician, becoming Senior Statistician in 1972. Until 1986 he was directly involved in the design, conduct and analysis of the programme of trials conducted under the leadership of Professors Wallace Fox and Denny Mitchison in East Africa, Hong Kong and Singapore, which led to the worldwide adoption of short-course chemotherapy for TB. Following the closure of that Unit, he joined the MRC's Uganda AIDS Programme which researched the dynamics of the HIV epidemic in a rural African environment. On his return to the UK, he became Head of the Division Without Portfolio within the newly formed MRC Clinical Trials Unit with responsibility for developing trials in neglected areas. He was Senior Statistician on the recently completed REMoxTB and RIFAQUIN trials. Currently, he is an Investigator and Senior Statistician on three international phase 3 trials of TB treatment, one of which, STREAM, he is Co-Chief Investigator, the first phase 3 trial in MDR-TB.

7 Nunn, Andrew*

Tilli Tansey: Andrew, could we start off by saying a little bit about your childhood, your schooling and how you got interested in statistics?

Andrew Nunn: I was born in Norfolk, in East Anglia. My parents both came from Suffolk, and we moved into Cambridgeshire when I was about seven, and then into Derbyshire when I was about 17, and from there I went to university. I was one of the very first students at the University of Sussex. I remember it was the day I was sitting my very first A level exam – the Deputy Head came along and said 'I don't know if any of you are interested, but the University of Sussex is looking for applicants if you're interested.' I had already got some provisional places at other universities, but I thought 'Well, that would be an interesting thing to do.' So I went down, had an interview and it just seemed an interesting challenge to be part of, because Sussex was one of the first new universities. I was very fortunate to be part of it. I did a degree in maths and physics for my bachelor's degree, and the maths part of it had just a small module on statistics. And I found that interesting; I think I've always found numbers fascinating one way or another. I remember reading a book about number theory when I was younger, and I enjoyed observing frequencies and so on. There was a little bit about clinical trials, but not very much, and I didn't really pick up on that at that stage. So I stayed on at Sussex and I did the master's in statistics alongside someone you'll know very well by name, and that was Virginia Wade we didn't play tennis together, but we did do the statistics. I really wasn't at all sure what I wanted to do when I left. What happened was, I think it was around April/May in my final year in 1966 I went along to see the careers people. And I gave my rather unsatisfactory thoughts about what I was thinking about doing, and they said, out of the blue 'Have you thought about medical research?' And I said 'No, I didn't know there was any opening in medical research for statistics.' Even the concept of biostatistics wasn't something I was familiar with, even though I'd heard a little bit about clinical trials. They said 'Well, the person you ought to go and see is Richard Doll.' They suggested I go up to London to

* Edited passages from the interview conducted by Professor Tilli Tansey, for the History of Modern Biomedicine Research Group, 9 August 2016, in the School of History, Queen Mary University of London. For more details, see 'Related resources' at the end of this volume.

Gower Street, to the MRC Statistics Services Unit, where Richard Doll was the Director, just to talk to him about what the opportunities were. I don't really recall much of what was said on that occasion. But I came away and said 'This is what I'd like to do.' There was an opening which came up in that unit which I applied for. I wasn't successful, but not long afterwards there was an opening at the MRC's Tuberculosis & Chest Diseases Unit. I applied for that and that's where it all began really.

TT: That seems remarkably far sighted almost, of the careers advisor to say 'Go and see Richard Doll.'

AN: Absolutely. I owe them a huge debt really. That person is probably not around nowadays but I'd love to know what gave rise to that.

TT: Could I just ask you to say a little bit about your school, whether you had particularly influential teachers?

AN: When I was doing O levels and had to think what I was going to do at A level, the subject I had found most interesting was actually history – I enjoyed history most, and we had a really enthusiastic and dynamic history teacher. But the subject I had done best at was maths. And in those days, Soham Grammar School was not a particularly big school; it had two parallel stream forms - they weren't graded particularly, but there were two parallel forms, and you had to make a choice when it came to A levels, and it was a limited choice. You could either do the science route or the arts route. I wanted to do history and maths, but it wasn't really an option. I was given a rather wise bit of advice there, saying 'Well, yes, you may enjoy history, but you can go on reading history for the rest of your life. But if you want to do maths and the applications of that then it's best actually that you should study that.' And so I did maths, further maths, as it was called then, and physics as my A levels, which I started in Soham Grammar School, then in Long Eaton in Derbyshire where I went on to complete and get my A levels.

TT: And then after University, you went to work for the MRC?

AN: That's right. In fact, as I'd already had some job offers within the civil service, but then I had an interview in what was in those days in Holly Hill, Hampstead, because the TB Unit was there. It was the TB Unit which had been formed in 1948, immediately following the streptomycin trial. I was interviewed by Wallace Fox, Denny Mitchison, and Ruth Tall. And I really do count it a tremendous privilege to have worked with them. Wallace Fox and Denny

Mitchison are two of the key figures in the development of the treatment of TB over a long period of time really, and indeed had already been involved for quite a while before I even joined them. They were in the process of moving to a purpose-built building in South Kensington. The Brompton initially had been a TB sanatorium, so clearly had strong links; it was chest diseases work. One of the striking things, in contrast to today, I suppose we had a staff of about 40 to 50, and there were two of us that were statisticians – Ruth Tall was the senior one and myself. In contrast to what you find today, the Clinical Trials Unit, where I'm working now, we've got a staff of 200 where just over 40 are statisticians. The role of the statistician has changed considerably over the years.

TT: How big was the Unit?

AN: I suppose about 40 or 50 people, something like that. A lot of them were involved in data recording, and we were starting to use computers, and starting to use an electronic calculator. The very first electronic calculator I had was about four foot square. It was a huge thing sat on my desk, which couldn't do much – it had about four memories, and it could add, multiply, divide and do squares – and not much more than that. And it took up an awful lot of space. But most of what we recorded, most of what we did, even for studies of 1,000 patients, was recorded on what we called an analysis card, about six by four inches, where all the details of the patient's treatment were recorded very carefully in a sort of abbreviated form. All their bacteriological results, including their smears, cultures, sensitivity results for TB, and there was a place where you could indicate if the patient had died or if the treatment had changed. And you could look at that card and see immediately the state that the patient was in. As years went on to when we started putting things on the computer, you then had to program the computer in such a way that it could pick up everything which could determine the status of the patient, which in the analysis by hand you could see at a glance. But we were sorting cards into piles in those days; that was how we did it.

TT: What was the main work of the Unit?

AN: It was originally called the TRU, the Tuberculosis Research Unit. When I joined it became the Tuberculosis & Chest Diseases Unit, particularly with the move to the Brompton. The bulk of the work, I would say 75 per cent, was around TB, and the other 25 per cent was working with the chest physicians at the Brompton in various areas of medicine, including cystic fibrosis, asthma,

allergic rhinitis and so on. Most of the TB work was done in the developing world and there were some other studies. By and large, it was actually outside of the UK.

TT: Did the statisticians work just within the Brompton or did you go out to the field studies?

AN: By and large we didn't go. The first time I ever went anywhere apart from going to a conference in Turkey; it was in the early 1970s, mid 1970s. We were working with a group in Algeria, helping them to set up trials. There was a very enthusiastic chest physician by the name of Pierre Chaulet, who wanted to work with us, and we did a couple of studies. One was particularly interesting; it was called the 'Sahara Study', which we did amongst the nomads and also settled residents in the Sahara. That was after the studies in short-course treatment in TB had started, and this was a particularly interesting one in terms of the outcome and the results, and, indeed, just in the experience of going over there and helping them to set up a research work.

The earliest studies in short-course chemotherapy were all done in very controlled settings, not because it was necessary, but because it had already been demonstrated in a study in Madras many years previously that patients could be treated as well out of hospital if they got TB as in hospital. But we kept them in hospital to be absolutely sure that they got all their treatment. It was really a proof-of-concept in those days: can you give treatment for a much shorter period of time than had been the standard treatment?

The Algerian study was a break from that in a way, because it was really investigating what happened when we go into field conditions where things are very different, where in some instances you can't even depend that the patients will be around in the same area, they may be mobile patients in the sense that they're going, like the nomads who moved from one place to another depending on the season, with their goats and their sheep, and also date-picking. So we had to have an arrangement whereby they would collect their drugs in one place and be told, the next place they can pick them up is some distance away, if that's the area that they were going to be working in. There was no Directly Observed Treatment (DOT) in the sense of directly observed treatment by an independent person of any kind. Possibly the head of the tent took some responsibility for the patient, but it was absolutely fascinating because the results were just as good in that nomad population as they were in the settled members of the population who were living in one or two of these sub-Saharan towns, which

suggests one of two things: either they were extremely assiduous in taking their treatment or possibly that they could actually take it and afford to miss some from time to time and still get good results. Whichever way it was, the results were remarkably good and it was a fascinating study.

TT: Could I just go back to you starting at the Brompton. Who was Director of the Unit?

AN: Wallace Fox was the Director. He had joined the MRC's TRU in 1952, and in 1956 he was seconded by the WHO to go and set up a Tuberculosis Research Centre in Madras, as it was then – Chennai today. There were two studies which had very interesting results. One was called the Home Sanatorium Study, asking the question 'If you treat patients in hospital or at home do you get better results keeping them in hospital, or can they do just as well at home?' The results in people treated at home were just as good as the ones treated at hospital. The other interesting thing was in relation to the contacts; there didn't appear to be any greater risks if the patients were at home to if they were at hospital. That's probably down to the fact that once you start on a treatment regimen with a drug like isoniazid, which has a very dramatic effect on the bacteria load, the infectiousness of the patient drops quite dramatically. So after a very short time, even a week, patients were much less infectious than they were before starting treatment. And that may be the reason why it didn't matter whether they were in hospital or at home; they weren't going to infect many people. Wallace Fox was in India for five years, but then he came back to the UK and headed up the Tuberculosis & Chest Diseases Unit, which I joined in 1966.

This was a completely MRC Unit; in fact there were two MRC TB Units. One was Wallace Fox's Tuberculosis & Chest Diseases Unit, and the other was under Denny Mitchison, who was a bacteriologist who headed up the Unit, which became the MRC Unit for Laboratory Studies in Tuberculosis. The two Units worked very closely together, and when new trials, new investigations were being designed, we always met with Denny Mitchison. He'd come across to the Unit at the Brompton, he met with Wallace Fox and other members of the scientific staff, discussing the next direction we should be moving in terms of studies.

TT: When you joined as a statistician, were you directed to support ongoing studies, or did you have input into the organization of studies?

AN: I think my input at the beginning would have been very little. I was the Junior Statistician and Ruth Tall was the senior one who had been working there for six years already. Wallace Fox had a philosophy that this is a team work, and so everybody should be involved, right from the outset. So I went to meetings where I didn't understand the concepts that were being discussed. But Wallace Fox did feel it was important that I was there. He felt the statistician shouldn't just be somebody who was called upon at just certain points in time: 'Ok, you can go away until we're ready, we've got some data for you to analyse.' It wasn't like that at all; we were part of the discussion of what's going on, in terms of planning a study, in the running of the study, the quality of the data and so on. Obviously there are interim analyses from time to time, the main analysis which is often seen as what really matters, but it's not the be-all and end-all, and then the writing up of the report and the interpretation of the results. So it was the whole way through; it's a very good philosophy, and it's one I think that has been adopted more as time's gone on. But it certainly used not to be the case, often you used to get people come to us at the Brompton; they'd just got a problem and they wanted us to give them an answer to that problem, and then they'd just go away. It wasn't very satisfying.

TT: You were employed as the Junior Statistician, was it a new position?

AN: Yes it was, because they recognized the work was expanding. So it was a learning process to begin with, but then clearly I took on responsibilities as new trials were being developed whereas Ruth Tall was working in other areas.

TT: As new trials were developed, what was the mechanism for that? You mentioned already WHO. What was the relationship, how were new trials decided upon?

AN: A lot of the emphasis was on looking for new treatments - we're talking about the mid-1960s – at which point in time the standard treatment for the UK had been pretty well established based on para-aminosalicylic acid (PAS) and isoniazid, with recognition that it needed to be given for 18 months. To give it for less you were going to be running into problems of failure. That was the treatment that worked well, but that had been established about 1962 in a trial that was referred to as the chronic trial. There was a recognition that PAS was too expensive a drug to use in the developing world. I remember what minimal amounts they had to spend on drugs for treatment in those days, in countries in East Africa, for example. It's amazing to look back and see; I was looking at a journal article which was published in 1964, before I started work,

where it said that one of the WHO recommendations even then was isoniazid alone for treating TB, which is surprising in some ways because the lessons of streptomycin were that if you give one drug on its own you've got the problem of resistance developing – although with isoniazid on its own I think you got better results than with streptomycin on its own.

On the other hand, you definitely ran the risk of patients developing resistance. But you could cure a substantial proportion with isoniazid alone, which was interesting, but it wasn't ideal. There was a drug that had been around for a few years called 'thiacetazone', an inexpensive drug, produced by Smith & Nephew Pharmaceuticals. Some early studies were being done that had started in East Africa looking at thiacetazone. And it was a question of finding out what was the optimum use of this drug, what was the correct dose to be using, what should it be supplemented with if you gave it with isoniazid, should you supplement it with streptomycin? And those early trials in the late 1960s addressed that particular question. There was also a very large side effects study called the 'Thiacetazone Side Effects Investigation'. It was the second of two investigations, this one involved over 4,000 patients, and I was responsible for that particular study. It was just getting under way when I started work, and it was conducted in countries in Asia, Africa, Europe and in the West Indies as well – just addressing the question of the side effects associated with thiacetazone, whether there were ways in which they could be prevented. It had been suggested that giving a vitamin supplement with thiacetazone might be helpful, and the study I was involved in had part of it where patients were given a thiacetazone tablet with a vitamin core, and they had a dummy core in some of the tablets so that you couldn't tell which pack contained the vitamin core. I was involved in supervising the labelling of the drugs. The drugs had to be labelled before they were dispatched out to the different countries around the world, so my job was to make sure that the labelling was being done appropriately. We labelled drugs on a number of occasions for different studies, but that's something which nowadays is done in a different way, that sort of thing would be done by some sort of independent group. This big study of 4,000 patients was analysed largely by hand, actually; 4,000 cards to analyse. It was all going to change because in the mid-1960s came the advent of rifampicin, and that started a whole new era beginning with that first short-course study in 1970.

TT: It seems quite interesting that the statistician was labeling the drugs and was integrated into the whole study.

AN: It is interesting in the way you're thinking about it. In fact, the structure of the staff in the clinical trials set-up has changed over time in the sense that we now have different categories of staff, like data managers, trial managers, clinical project managers. Looking back, there weren't many statisticians either, so there was just a little bit broader remit than perhaps we might have today. We might be responsible for producing the randomization lists, but not actually overseeing the labelling of the drugs.

TT: I'm fascinated by the roles and responsibilities of the MRC and WHO, and the countries in which you were working. What were the relationships? Was this in any sense, because there are so many conflicts and tensions we're aware of nowadays, of western medicine being imposed?

AN: I don't really know how some of these arrangements were initiated. I think there was a recognition of a responsibility to assist in East African Commonwealth countries, although they weren't even necessarily Commonwealth countries at that stage. Some of them were, before they achieved independence. There was an East African community in those days which was made up of Uganda, Tanzania and Kenya; we had staff working in all three – we had a Senior Technician, a Laboratory Technician based in the main lab at each of those three countries. We also had field staff based in the country. You could have between 30 and 40 centres in one study. The patients enrolled in the study might not be at one particular centre, and centres would perhaps enrol no more than 20-25 patients in some cases while a larger centre such as in Nairobi would enrol 50 patients. So that was the setup in East Africa. Hong Kong was slightly different, and in Singapore we didn't do as much, but those were the main areas.

TT: When you say you had staff in East Africa, these would be MRC staff?

AN: Yes, they were all paid for by the MRC. Laboratory staff were members of Denny Mitchison's Unit; he had a Senior Technician based in each of these countries. These were people who went from the UK to set up the laboratory, to oversee it, to train local staff at the same time. But they were based there for a long period of time, in Nairobi, in Kampala and in Dar Es Salaam. A bit later we expanded to Zambia, Lusaka, because we had to get out of Uganda when Idi Amin started misbehaving. We had staff in the UK; there was a doctor, Joan Heffernan, for example, who had responsibilities initially for those studies in East Africa, who would go and visit for a period of about six weeks at a time, and would go round all of the sites to oversee what was happening. What

didn't happen was the statistician going – that's something that we didn't do. I mentioned about involvement in Algeria – that was exceptional. I never got anywhere near East Africa in those days.

TT: You were a part of the MRC Tuberculosis & Chest Diseases Unit for many years, what were the changes over that period?

AN: Twenty years, 1966 to 1986, yes. One change was that we got our first electronic calculator. Another one, we started putting the data not just onto the analysis cards, but we started to use a computer. We used the London University Atlas computer, which was based in Gordon Square. That was fine when we were based in Tavistock Square next door, because that is the adjacent square. We used paper tape, often from the Creed machines, as they were called in those days. Or we did a certain amount on IBM punch cards. And you would take the programs round to Gordon Square and they would run the job, and then you'd go back a bit later and look at the output. When we moved to the Brompton Hospital it might have only been two or three miles away, but we were relying on a van service that came and picked up the program to be run, and then delivered the results of the program which had been run the previous time. Now the problem is if you've made one mistake anywhere in the program, you had to wait and rerun it again the next day. It took a long time to get a program running properly, because it wasn't like we can do today; you can have multiple goes very rapidly until you get it working properly. So that was very frustrating, and in some ways the advantages were not that great as we were doing just as well doing a lot of the analysis by hand, because in fact we were looking basically often at a binary outcome, to say 'Has this patient had a successful outcome at the end of treatment?' 'If they had then, subsequently did they relapse, and when did they relapse, and if they relapsed did they have acquired resistance?' and so on. These could be analysed in a reasonably straightforward way by setting cards out. Yes, they could be done on a computer, but we got very skilled at using the card-sorting approach. It was a very gradual transition to using computers. And it took the best part of 20 years before we were using computers more than using cards.

TT: You talked about patients relapsing, so these studies were really quite long-term?

AN: They were, yes. When we did the short course studies the key metric in terms of outcome was whether patients had a relapse-free cure. In other words, they were treated satisfactorily and then they were followed, usually for another 24 months. We even in some cases followed them right up to five years to see whether there was any chance that they were going to relapse in that period.

TT: And what was the definition of relapse?

AN: Well, it was a recurrence, a bacteriological recurrence. We were not able in those days to distinguish between relapse and reinfection. That technology wasn't available at those stages. So all we could say was the patient had a recurrence. They were actually called 'relapses', but some may have been reinfections, so in fact nothing to do with their original infection.

TT: During that period was there any particular trial you were especially proud of, or involved in?

AN: Undoubtedly the one that stands out is the very first short-course study. As I mentioned earlier, rifampicin was the drug which became available in the mid-1960s. There had been no new drugs for TB for a while, but rifampicin stood out as the drug, which, along with isoniazid, looked to be a really powerful combination. There had been some studies in the laboratory in mice in the USA, which had suggested that in fact it both had a bactericidal effect in reducing TB bacilli, but also a sterilizing effect in terms of wiping up the persisting bacilli. Denny Mitchison and Wallace Fox suggested this could revolutionize the treatment of TB. It's fascinating to look back because this is a discussion which goes on today in a way, saying 'If you get a new drug, should that new drug, if there's not a lot to choose from, should that be reserved for treating difficult or resistant cases, or should it be used for the regular treatment of TB?' And it was felt that it was appropriate that we should look at this as a way of potentially shortening treatment. It had been established in the early 1960s that you had to treat patients for 18 months or more.

In the early days they just had no idea how long to treat; they started with three or four months – that didn't work very well; even 12 months wasn't enough. Some of the studies had established that you needed to treat for 18 months or more. The trouble is 18 months is a long period of time in whatever populations you're dealing with, whether in the developed world or the developing world. Often patients would not collect their treatment, and many of them relapsed and failed their treatment, simply because they weren't taking it properly. So we had a meeting, in late 1969 or the beginning of 1970, in which we planned to

do this study looking at a regimen which was only six months in duration. We took the opportunity to study a number of regimens, all based on streptomycin and isoniazid; four regimens in total, one with rifampicin added, one with pyrazinamide added, one with thiacetazone added, and one with nothing added. It became very clear that the last two of these regimens were completely ineffective; the relapse rates were high, and they were stopped early. But the one with rifampicin gave remarkably good results, and that was what was really very exciting because the relapse rates were only of the order of three per cent. It was very consistent with the results that we were getting from the 18 months under very controlled conditions, where you made sure the patients were getting their treatment all the time, and excluding those who were missing treatment and not getting it. You were getting as good results with the six-month regimen as with 18 months of standard treatment. So that particular study stands out as being the biggest landmark since the streptomycin trial in 1948. We published our early findings for that in 1972, and confirmed it in subsequent analyses by following the patients for a longer period of time.

TT: When you were conducting these trials, what was your relationship with the drug companies?

AN: We had some meetings with them when planning the trials, and obviously they recognized that if we, an independent group, were to conduct this trial, it would carry much more weight at the end of the day, and be more convincing, than if it had been just the drug trial initiated by the pharmaceutical company. All the preparation for the trial and the development of protocols, and so on, was actually done within the TB Unit.

TT: Legislation in this country was rather different, before the Medicines Act of 1968. Were you always governed by the legislation in this country? Or did you have to consider legislation in the countries where the trials were carried out?

AN: Committee structures or getting permissions of various kinds, and indeed even patient consent and so on, were not given anything like the same sort of attention in those days as they are now. And as it rightly is now. Medical Officers of Health in the other countries? I think there was some communication with them and discussion as to whether they were willing to have the particular trial conducted, and it was left to us to get on and do it.

TT: Would you like to say something about ethical changes?

AN: If you go back even before I started, to the streptomycin trial. Sir John Crofton noted that the patients were not told they were in a trial, and they kept those who were on streptomycin in a different ward from the ones who were not on streptomycin, so they didn't know what was actually going on. It has changed a lot. It could be argued in some sense that the pendulum may have swung too far, because the patient information sheets which now have to be given to the patients often run – and depending on who's producing them and what the study is – to many pages, and it's hard to imagine many patients really reading or even being able to take it in, even if it is written in a language which is meant to be understood by a 12-year-old. One can understand why it's important to do this. But on the other hand it's also been demonstrated – not just in trials in the developing world, but also in trials in this country – that if you go to a patient who's been in a study for a little while, despite all the effort that has gone into making the patient understand what the study's about, you can ask them questions and in many cases they haven't necessarily got a good grasp of what it is. I'm not sure how we can do better. It's an area where there's room for improvement, because, currently, the process of getting a patient's consent is an important one, but whether we're doing it in the best possible way, I'm not entirely convinced. I think there's more work to be done on that.

TT: Can we go back to your career, and moving into the 1980s, and 1986 in particular, which was when Wallace Fox retired. The standard MRC procedure on the retirement of a Director was closure of the Unit. Was there any discussion about continuing the Unit?

AN: Yes, indeed. Wallace Fox did a rather strange thing, in that the Unit was the Tuberculosis & Chest Diseases Unit. That had worked extremely well, and we had produced some important publications outside the area of TB. But when it came to putting in his final report, trying to look forward in terms of persuading the MRC what should be done with this Unit, he put the emphasis totally on TB. In many ways one can understand that, but on the other hand you can also, from the MRC's perspective, understand why, when they looked at the situation, they might have said 'You have developed short-course chemotherapy,' and it wasn't just that first study, we had done a lot of following studies in terms of looking at ways to improve or to simplify the regimen. And the question was 'What other major questions need to be addressed at this stage? Or is it really a question of people getting on and doing treatment?' We had tried shortening treatment to four months without success, we got a successful regimen of six months, and that seemed to work well.

Unfortunately, we were not aware of the effect of HIV in the developing world, particularly in Africa at this stage. We had no idea of the impact just at the time in the mid-1980s – the rates of TB were just beginning to go up in many African countries; for example, in Zambia they went up fivefold, from being around 100 cases per 100,000 in the population to 500 per 100,000 in the population. And Zambia was typical of many other countries at that time. If we'd known that HIV was going to have such an effect on TB, I think we could have made a strong case for saying 'It is really important, that this Unit continues to look at TB, and in conjunction with HIV as well.' There would have been another opportunity, and hindsight's a wonderful thing, and that is that there were no such things really in those days as Clinical Trials Units, and for the Unit to have become a Clinical Trials Unit, not saying we'll just focus on TB, or even just TB and HIV, but actually open up to doing trials in other areas.

TT: Another couple of years it would have been much clearer.

AN: It would have been much clearer, that's true.

TT: Where did that leave you and your situation?

AN: Well, this is interesting. There were four members of staff, Janet Darbyshire, David Girling, Peter Fayers and myself, who were senior staff at that stage, who had been working on TB and in the Unit for some time, who were all tenured staff, so the MRC had a responsibility to find a job for us. What they could easily have done is scattered us to the four winds; we could have all gone in different directions. But we said that we would like to be able to stay together at least for a short period of time to see what could be developed. The MRC agreed to that, and they formed not a Unit but an external scientific group called the 'Cardiothoracic Epidemiology Group'. It was called that because it was based at the Brompton Hospital. It was a slightly odd name to give it, but in fact it was headed up by Professor Corbett McDonald, who came from the London Hospital, he was also working at the London School of Hygiene & Tropical Medicine. And we hadn't been in existence for more than a year when the AIDS Committee of the MRC decided that the time had come to do clinical trial research in AIDS. So the MRC, together with the French equivalent, INSERM (Institut National de la Santé et de la Recherche Médicale), proposed the trial in which patients who were asymptomatic but infected with HIV should actually be randomized to receive azidothymidine (AZT) or a placebo. One of the four members of our group, David Girling, put forward the proposition that we should do it in our group, this group of external staff. The MRC agreed and

so the 'Concorde Study', as it was called, was born; an Anglo-French study. It enrolled about 1,800 patients, half in France and half in the UK. And that was the start of a whole programme of HIV trials, and that group evolved into an HIV Clinical Trial Centre, not a Unit, still external staff, but to all intents and purposes it was actually a Unit researching a treatment for HIV. I was involved in the planning and the initiation of the study. The idea was proposed in 1987, the study started in 1988, but in early 1989 I heard about an opportunity in Uganda, and so I jumped ship as it were.

TT: How did that come about?

AN: What was fascinating was that this was in January 1989 and the MRC got in touch with David Girling and myself. David and I were the two who were responsible for setting up the Concorde study. The MRC thought it would be good if we could meet Dan Mulder, a Dutch epidemiologist who had been appointed to head up a programme to look at the dynamics of HIV infection in a rural population in Uganda. He was in London, so we went to meet him, to learn about what he was doing, and he could learn what we were doing. He described that he was hoping to start this study later that year, round about September, in Uganda. But he'd had a frustrating time in finding a statistician; he had got other staff in place; basically it wasn't going to be a large expatriate staff – there were going to be four people, that's all. He wanted a laboratory person, an epidemiologist, a social scientist and a statistician. And he hadn't been able to find a statistician. Well, that lit a light as far as I was concerned; this was what I'd absolutely love to do. And the reason why it was possible was because we'd just reached the stage when PCs were becoming routine. You weren't dependent on mainframe computers, where you had to send a job to a computer, but you could have a desktop computer. And the Ugandan Government was very keen on the project, but they made very clear that the data all had to be analysed in-country unless there was a very good reason: that included all the laboratory work and all the data analyses. In other words, they were very much against the parachute form of research, whereby researchers would come in, collect data, take it away and analyse it outside the country without involving researchers in the country at all. The MRC agreed to that approach, and needed a statistician to be based in Uganda on the job. I got in touch with Dan Mulder after the meeting and said I'd be interested, and I got the job. Later that year I left the Concorde study and went to Uganda and spent six years working on that project.

TT: Were you already familiar with the setup in Kampala and in Uganda?

AN: I knew absolutely nothing about it really, I knew about the TB studies we'd done, but within the six-year period I was there we didn't really have many TB connections, although there is this strong connection between TB and HIV. We were not actually addressing that particular interaction as it happened, and we were based at the Virus Research Institute in Entebbe, which had done landmark work in the past on diseases like yellow fever. It was, it so happens, in a pretty ropey state prior to HIV coming along. HIV brought new life to the Institute. And that's where we had our offices; we did our field work in a rural area in south-west Uganda, a bit further out from there. It was MRC-funded. It was from the Department for International Development (DFID), funded through the MRC.

TT: It's now very common to expect that work is done in-country, and there's a lot going on about distribution of funds, like the Wellcome Trust is doing now for example. Making sure that it's in-country, the money's kept there. Was that unusual at the time?

AN: It was unusual because it wasn't very much earlier that the desktop PC, had been developed. Otherwise it wouldn't have been possible, not if you were going to use computers. You could have done work without a computer. As far as the work that I'd been involved in, most of the TB work, as I said, we did use computers to some extent, but not a great deal. A lot was done by hand analysis. So it was a break point; it was quite an important transition point. It did make a big difference. I was the only statistician. My responsibility was for the statistics and also the computing; the database side as well. After I'd been there a year I said to Dan Mulder 'We should be appointing Ugandan statisticians,' so from then on, each year we appointed another Ugandan statistician, so we had one start in 1990, another in 1991, another one in 1992, and so on. We were building up a core group of Ugandan statisticians.

We trained them on the job, because their experience, their training, was that they had done a Master's in economics and statistics at Makerere University in Kampala. They didn't know any biostatistics, and there were some fairly basic tests they were not very familiar with, because they were just not applicable in their area. But with one or two exceptions, it worked very well. We had one or two that didn't work out quite so well as others, but in fact it was an interesting experience. Some of those went on to get Masters and PhDs elsewhere, which was good. I'm glad to say that the Ugandan Unit has gone a long way down that road of encouraging local staff, in the sense that the Director of the Unit

and the Deputy Director are both Ugandans now, as are a number of other top senior posts. Unfortunately, they really struggled to get a Senior Statistician to head up the Unit.

TT: When you got there, this was a rather different kind of job to what you'd been doing before?

AN: It was. The responsibilities were considerably more. After I'd been there for a while I was asked to become Deputy Director to Dan Mulder. There were considerable responsibilities over the data entry staff, the Junior Statisticians and working with the senior scientific team. It was a tremendous six years; I enjoyed that very much.

TT: Were you involved at all in the data collection? Going out and collecting?

AN: I used to go regularly – if it wasn't once a week it was at least once a fortnight – to visit the field station. I used to drive down; it was about 130 to 140 km away. I'd go down for the day, sometimes we'd stay overnight, to observe what was going on and to have discussions with the field staff who were collecting the data.

TT: And what was the main focus of this research?

AN: The main focus at that stage was to understand the dynamics of the HIV epidemic in a rural African setting. You have to bear in mind how little was known about HIV in those days. This was 1989, September. There had been case reports and data coming out of some hospital settings and so on in Africa. But, by and large, this was limited. There were no cohort studies, and this was, actually, a cohort study. It followed a whole population, in the first instance to see what proportion of the population were infected, and the demographics of those infected. And then, secondly, who gets infected, and how does the course of the disease manifest itself over time. This was really fascinating, because there were assumptions that were made, which were actually found to be completely wrong. They thought, for example, that the transmission might be as a result of many things other than sexual transmission. But basically it was heterosexual transmission with mother-to-child transmission as well. There was a thought that some local practices such as circumcision might actually have a negative effect. Subsequently it's been found to be positive; it actually reduced the chances of HIV infection. What often happened in practice was that a whole load of young boys would all be circumcised at the same time, using the same instrument; well, that would be a way that you could easily be transmitting from

one to another. Also there was a feeling that some of the scarification that was done, might facilitate transmission. Regarding blood transfusions; Uganda was in such a bad way that there were very few people who got transfusions – the proportion who got HIV through blood transfusions was absolutely negligible. We established that of all the children who had got infected, either their mother was already infected, or their mother had died of AIDS-like illness. For large numbers of them, it was their mother who had actually been the cause of their disease. One of the other interesting things was the life expectancy from the time of HIV infection. We thought that in an African context, where people obviously were immuno-compromised for a number of reasons and have other morbidities, subsequent life expectancy might be different from what we find in the West. But it was, interestingly, very similar to what it was in the West in the days before the advent of antiretroviral drugs. I think the most interesting of the publications that came out of there in the first year or two was the one that looked at the attributable mortality of HIV in the population. What proportion of deaths could be attributed to HIV? The adult sero-prevalence rate was eight per cent high, but it wasn't enormous, although Uganda had a name for having a very high HIV infection rate. The reason we reckoned it was the worst place anywhere for HIV was largely because the Government was extremely open about their HIV, which virtually no other African country was. Everyone else was trying to suppress the fact that they'd got problems with HIV. Anyway, there was an eight per cent sero-prevalence rate amongst the adults, but then one year later when we did our first repeat survey, and looked to see which patients had died – we found that 45 per cent of the deaths that had occurred were attributable to HIV, coming from only eight per cent of the population. That was the overall figure, but if you looked at deaths in the 25 to 34 or the 35 to 44 year age groups nearly 80 per cent of the deaths were caused by HIV. So clearly it was having a huge effect on the population. We looked at a reduction in life expectancy, did calculations on how life expectancy had been brought down dramatically by comparing life expectancy in HIV infected persons compared to the non-infected. Clearly the HIV epidemic in that setting was having a very dramatic effect.

TT: This is very different work from your clinical trials days.

AN: Absolutely, and there were no clinical trials; well we did start a preventive clinical trial while I was there; basically the work was more epidemiological.

TT: And a cohort study, how big a cohort?

AN: The population we started with came from 15 villages in south-west Uganda, with a population of 10,000 people – adults and children. That cohort got expanded a number of years later to 15,000, so it wasn't an enormously big one, but it was of a sufficient size to be able to give us very helpful information.

TT: Were there other groups in Uganda?

AN: There was a group working in Rakai from Colombia University in the USA. We didn't interact, but they were doing similar sort of work.

TT: What impact did this work have? Did it have any immediate effect?

AN: The Government in Uganda in those days had a very enlightened approach to HIV. There was a non-aligned summit in the mid-1980s which Yoweri Museveni, the President of Uganda, attended, and he met up with Fidel Castro. Fidel Castro said 'You've got soldiers from Uganda training in Cuba. Did you realise that one-third of those soldiers are infected with HIV?' This is in the mid-1980s. Museveni's response was 'that's not possible, it's a western disease.' 'Well,' Castro said, 'It's true.' So Museveni went back to Uganda and asked the Ministry of Health how many enzyme-linked immunosorbent assay (ELISA) machines they'd got for testing for HIV, and was told 'In the country there were only two, one in a Government hospital and one in a mission hospital.' And he said 'Well, we must start testing. We must find out what the extent of this problem is.' And he invited researchers in, including the British and the Americans. Uganda was at the forefront in terms of acknowledging the problems, and there were big posters showing lots of people saying 'Can you tell which one's got HIV.' They had this ABC approach: abstinence, behaviour change, and using a condom. This sort of approach had two consequences. One is that people felt that Uganda must have got the worst problem of anywhere because of the way that people were hearing about it. But on the other hand it was the one country that did see a dramatic drop in the prevalence. The prevalence of HIV in antenatal clinics in Kampala when we started was about one-third. Over the years that followed that dropped to ten per cent, and we saw a drop also in our rural population in terms of the incidence rates and in prevalence, particularly in the young men. There were multiple things going on, so it would be hard to dissect the effect our group had. The findings on the high attributable mortality were very interesting and we submitted the paper to *The Lancet*. *The Lancet* had been publishing lots on HIV. Every week there was an article on HIV, for several years. We were now into the early 1990s, and I think they may have been getting to the point of thinking 'We've published

enough on HIV,' and they turned the paper down. We went back twice and said 'This is a very important paper, and you're making a big mistake in not publishing it,' and we got some other people to back us up. They eventually did publish it, and they put a leading article in from two people, Dondero and Curran from the Centers for Disease Control and Prevention (CDC), who in their leading article said this should put a nail in the coffin of these people who said that HIV doesn't cause AIDS. There was this American molecular biologist called Peter Duesburg, who was going around saying that. And he influenced, unfortunately, the South African Government. At the time when we were in Uganda, the South Africans had very little HIV. They had an explosion of HIV across the 1990s when rates went up in antenatal clinic attenders in some parts of KwaZulu-Natal, from five to 40 per cent over the course of ten years. It was terrible; the message didn't get through. Our *Lancet* paper that was probably the most important publication that came out from our research group then.

TT: What were your relationships with the MRC back in London? Did you have to come back fairly frequently?

AN: Not particularly, no. We were just left to get on with it, really. Clearly there was a scientific advisory group, and that group did come out, they did visit us. But otherwise we didn't have much contact. Interestingly, the MRC in London didn't seem to have much of a clue what it was like for people to live in the developing world. They didn't tell us anything about what we had to do healthwise, anything like that. They didn't give us any advice about malaria, anything whatsoever; we just had to find that out for ourselves. Really they were rather unhelpful in that respect. But we survived.

TT: Did you ever feel cut off and abandoned by the MRC or were you just grateful that you were allowed to get on with things?

AN: We didn't feel abandoned, just felt 'This is how it is.' I don't know if we were expecting anything more, just in hindsight there was no preparation whatsoever for going out there, no indication at all what it would be like. We were clueless. When I expressed an interest in going, and I met up with Peter Smith and Richard Hayes at the London School of Hygiene & Tropical Medicine, I didn't even have an interview – they just said, 'Would you like the job?', then the MRC said 'Would I like to go out to Uganda for a week to have a look round to make a decision?' Nowadays the spouse would have the opportunity to go as well, but I went out for a week and came back, and persuaded my wife this would be something worth doing.

TT: You were there for six years. There would have been a quinquennial review? An MRC review?

AN: Yes. I think there was a programme for an initial period, and I'm not quite sure exactly how long that period was. Dan Mulder was out there for a year, just setting up, making all the contacts, deciding where the work would be done, in what part of the country we would do the work, finding somewhere which we could get to, where the roads would be such that it was passable. He was there a year before we started, and then I went in September 1989, which is exactly when the fieldwork started. I'm not sure at what point exactly we then started planning what to do next, which was partly planning an intervention study, to look to see whether there were ways in which the population could be better informed to try to reduce the incidence.

TT: What made you decide to leave?

AN: I was given a four-year contract in the first instance, which was unusual, because most people get two years. I left really for family reasons, children getting to a particular age and so on and feeling that my wife's experience wasn't quite so rosy as mine. In some ways I felt I could've just gone on and on.

TT: Did the MRC reassign you?

AN: Yes. David Girling and I had started the HIV Trials Centre effectively through the Concorde study. I had left to go on to Uganda; David had left to go on to Cambridge and joined the Cancer Trials Office at Addenbrooke's Hospital, the MRC Cancer Trials Office, and Janet Darbyshire took on the HIV Trial Centre at that point. Janet made it possible that I could re-join the HIV Trial Centre, which had by then moved from the Brompton Hospital to Mortimer Market at the UCLH (University College London Hospital). So I got involved in HIV trials, and particularly microbicide trials for protection and prevention of HIV in women, including one very large Phase 3 trial of over 9,000 women, conducted in a number of countries. This was picking up my trials experience, not forgetting that just before I'd been to Uganda I was doing the Concorde Trial, so it was really getting involved in trials again, but now in treatment and, particularly, in HIV prevention. The microbicide work became the largest component as far as I was concerned, and was Africa-based. Uganda was one of our sites, we included South Africa as well, and Tanzania, and Zambia – they were the four main countries.

TT: Were you collaborating again with your former colleagues in Uganda?

AN: Yes I was, actually, but also with a group in Mwanza in Tanzania, and in Lusaka in Zambia. I started to get involved in TB again, in parallel to this HIV work. There were claims being made that injections of *Mycobacterium vaccae*, a mycobacterium which is found in the soil, as a way of treating TB and, indeed, allergies and even cancers. A number of people were doubtful, and Janet Darbyshire rang me, knowing I'd just come back from Uganda and asked if I would be interested in running this trial? And I said I'd be very interested. So in parallel to the HIV work, I was involved in running this *M. vaccae* study in Zambia and Malawi, which actually didn't show any benefit whatsoever. But it did manage to start the TB work again; it was the first of a number of studies.

TT: You were principally involved in HIV studies?

AN: Principally in HIV and principally in microbicide studies. There was always a feeling, often in African settings, that if you couldn't persuade the men to use condoms then if the woman could apply a gel of some kind, it could be a major step forward to reduce the chances of women being infected. There had been one unsuccessful trial, rather seriously unsuccessful insofar as the product caused more HIV infection than the placebo, because it caused ulceration, and therefore an entry for HIV infection. So this was going on between 1995 and 1998. It was around about 1997, that Janet Darbyshire was asked if she would head up the Cancer Trials Office in Cambridge, and she said 'No' Then they said 'Supposing we brought the Cancer Trials Office back to London' – because it had been a part of Wallace Fox's Unit – 'and formed a Clinical Trials Unit, would you be interested?' The Unit was formed with three Divisions: there was an HIV Division, a Cancer Division, and there was the division without the portfolio, which I headed. The MRC said 'We don't want you just to be doing work in HIV and cancer, we think there's a need to be developing clinical trials in other areas'.

There were areas of medicine such as musculoskeletal medicine where trials had been done but the quality of the trials had not been good, or transfusion medicine where there hadn't been any trials, or dermatology, and, indeed, one of the areas that had been neglected was respiratory medicine. The BTS, historically had done some quite important studies. They had done their own short course TB studies, and some other studies as well, but all of that had fallen by the wayside. Basically we helped to develop trials in these and other areas; from 1998 to about 2008 or so. When Janet Darbyshire retired as Director the MRC did a re-evaluation of the Unit's programme. Now there are at least 50

Clinical Trials Units in the UK. So things have changed totally in the sense that the MRC now has to have a very strong justification for doing clinical trials, because almost every university has got one or more than one.

TT: Are there too many, do you think?

AN: Arguably I think there could be too many, because I think some are not such good quality as others. We have focused back on two main areas, which are infections and cancer. We're really back in doing quite a lot of work in TB again. The area that I'm particularly working on is MDR-TB, and the STREAM, which is pretty well the first Phase 3 multicentre clinical trial there's ever really been in MDR-TB. The background to that trial is very interesting because, in contrast to drug-sensitive disease, which has got a very good evidence base, built up over many many years, drug-resistant disease has been a seriously neglected area, and there's a growing problem. There are about half a million new cases of MDR-TB every year. Only about one-fifth of them ever get treated and, of those that do get treated, the WHO data shows that only 50 per cent have a good outcome.

We're expanding now to ten countries. There were seven sites in four countries, but we're now expanding to ten countries, including, we hope, India and China, and other countries in Africa, and two countries in Eastern Europe, Moldova and Georgia. So the whole thing has grown a lot.

TT: Your career has almost gone full circle.

AN: Absolutely, it's great to be back with TB. I'm also involved with some other TB studies, but I'm Chief Investigator on this study, which I've never been before, because that's always been a clinician.

TT: I think at that point we've got to stop. Thank you very much Andrew.

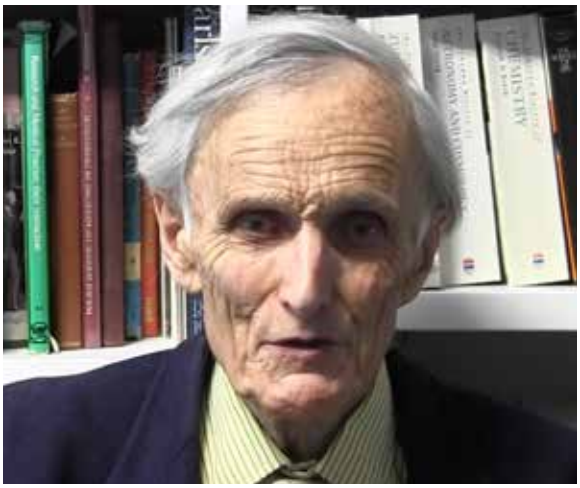

Figure 8: Professor Sir Eldryd Parry

Professor Sir Eldryd Parry KCMG OBE MD FRCP (b. 1930) studied medicine at Cambridge and Cardiff, and was seconded from 1960 to 1963 to University College Hospital, Ibadan, Nigeria. In January 1966 he returned to Africa at Haile Selassie I University, Addis Ababa, and left in 1969 to take the Chair of Medicine at Ahmadu Bello University, Zaria, Nigeria. In 1977 he became the Foundation Dean of Medicine at the University of Ilorin, Nigeria, where he introduced a radical Community Based Education and Service (COBES) programme. From 1980 to 1985 he was Dean and Professor of Medicine at the now Kwame Nkrumah University of Science and Technology, Kumasi, Ghana. He was Senior Editor of *Principles of Medicine in Africa* until 2009 (4th Edition, 2013). He is an Honorary Fellow at Cardiff University, Emmanuel College Cambridge, the London School of Hygiene & Tropical Medicine, the Royal College of Surgeons of England, the College of Physicians and Surgeons of Ghana, and a Foundation Member of the Faculty of Medicine and Surgery of Amoud University, Somaliland. In 1988 he founded Tropical Health and Education Trust (THET), which he chaired until 2007. He was given a Lifetime Achievement Award by the Royal Society of Tropical Medicine and Hygiene in 2007. He received the OBE in 1982, and was appointed KCMG in 2011.

8 Parry, Eldryd*

Tilli Tansey: Medicine was in your family?

Eldryd Parry: Deeply within the family, and my mother and father showed exceptional devotion to their patients. They did home visits all the time; that was how they worked. This was before the health service came in and they worked anywhere. When my father died, at his funeral a woman said to me, 'You would have been a very rich young man if your father had sent out bills.' Just that. Routinely, if there was a minister of religion, they reduced the bill by 50 per cent. If patients couldn't pay, they just didn't send a bill. The other example is that my mother did an evening surgery every evening except Saturdays. And an afternoon surgery on two afternoons a week. After the evening surgery she would go around to the women at home who had metastatic cancer and who needed to go through the night, and she'd give them morphine in perhaps ten times the normal dose – i.e. she was giving sophisticated palliative care as a GP in the home herself to see them through the night. And there was never any question of being off duty or that sort of business, you know, out of hours. They were at the service of their patients and they were loved. So that was the background; that was my background.

TT: And where was this?

EP: This was in Cardiff. My father served his patients whether in the side street or when we drove out into the county and were received by the butler. Whatever the house he took his coat off, treated the family in exactly the same way whether they were the privileged or the unprivileged.

And I was privately educated first of all at the school of my great aunt, who ran a sort of dame's school, and they were terribly upset when my mother and father said they were taking me out and sending me off to a prep school [laughs]. I then went onto Shrewsbury with a scholarship. The deal was I wouldn't go unless I got a scholarship.

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* Edited passages from the interview conducted by Professor Tilli Tansey and Mr Adam Wilkinson, for the History of Modern Biomedicine Research Group, 12 July 2016, in the School of History, Queen Mary University of London. For more details, see 'Related resources' at the end of this volume.

TT: Were you always destined to do medicine?

EP: No, not at all. The assumption was that at the age of 16, of course, one does one's rebellion, and I wrote to my father and said, 'I really want to give up medicine.' I was in the middle of the Cambridge first MB's and 'I want to become keeper of furniture at the V&A (Victoria and Albert Museum),' because I was interested in old furniture, Welsh furniture particularly. He sent a telegram, 'Don't dare shirk Cambridge exam this term, Father.' [Laughter]. The best telegram I've ever received in my life, because it set me straight and I've had a hobby and an interest in parallel.

TT: You were doing first MB, had you not done science at school?

EP: Oh, not at all. Classics. Classics, History, French, Latin, Greek. Science was something that was quite separate in education. Very often people took up science when they actually went into university itself. Science was not generally taught until you did school certificate. Anyhow I'm very grateful in medicine to have had a base in Latin and Greek. I still use the Greek in my Greek New Testament.

TT: So you went to Cambridge on a scholarship?

EP: No, I just went in on first MB. I left School and wasn't called up to National Service because I was going into medicine. University was difficult. I mean I loved it, but I wasn't ready for it and I had a very poor tutor. I was doing the natural sciences Tripos. When I went to Cardiff, I absolutely thrived.

TT: You went to the Welsh National Medical School for your clinical training?

EP: Yes, my father said, 'You're a Welsh boy, you've had all your education in England, it's time you came home.' It was a genius decision, because Harold Scarborough who was a wonderful academic, had just been appointed a year, and he gave his initial inaugural lecture in Cardiff in my first term and it was on 'Authority, Observation, Experiment'. The old Medical Unit in Cardiff, had been, run by a part-time Professor 'This is what it is, I tell you my boy, I've seen 35 cases.' Harold turned that upside down and I loved it. And he grew a Medical Unit around experimental people of interest. The Cardiff Medical School was brilliant, and Harold Scarborough didn't lecture from a textbook, he lectured from an idea. He didn't talk about bronchiectasis, he'd talk about breathlessness. And whereas other lecturers said, 'Let's do fractures of the leg,' or something, Harold didn't do that at all. And you could do what you wanted, you could go to any clinic at any time. There was a very good neurologist called J D Spillane,

who wrote a book on tropical neurology. He had studied deficiency neurology in prisoners of war, which is where he'd been. And he was probably the leading authority in the country; very, very good. So it was great.

TT: Was it a very big Medical School?

EP: No, 40 or 50 in each year. I did everything else, I played rugby of course, and captained the squash, and was secretary of the cricket [laughs]. I was living at home, which was very precious, and I saw general practice as it should be.

TT: What about your career expectations?

EP: I had no career expectations. I wanted to be a physician in 1951. The medicine of South Wales at that time in the 1950s, was the medicine of the poor world. There was rheumatic fever. When I revised for my Cambridge finals, I went to small hospital in Merthyr Tydfil, 54 beds, all rheumatic heart disease in children or rheumatic fever. And there was another one in Cardiff of 27 beds. So we just went and listened to 54 rheumatic hearts. So when it came to Cambridge exams it was a pushover. And in my finals at Cambridge, I was shown a man with a swelling in the lower back over where the kidney would be. And I said, 'Well, this is perfectly straightforward. This patient has Pott's disease and he's got a paravertebral abscess.' The examiner's eyes nearly popped out. He said, 'How do you know?' I said, 'I saw one three weeks ago in Cardiff.' [Laughs]. It was a wonderful training. Four, up to five, coalworkers autopsies every day, usually pneumoconiosis – a superb pathology department, superb. Dillwyn Williams who was Professor of Pathology was head of a wonderful group of pathologists and I, in the midst of all those bugs, got tubercle. So in my fifth year I spent a year in hospital as was the pattern then, they only had streptomycin and PAS. I was there for a year. And the doctrine was that for every lesion you did a thoracotomy if there was still something visible at six months in the radiograph. So I had a major surgical operation, a tube in my chest, and I presented pretty ill at the beginning with a high fever and so on. I had a vigorous immune response, and a very high fever, and a pleural effusion, and I wasn't well. And then at six months I had this operation, which my uncle saw. He said it was the most superb surgery done by a man who had been a GP, he'd been a surgeon in the War and had taught himself thoracic surgery, and he was given an Honorary Fellowship of the College of Surgeons. He was a superb surgeon.

So I spent a year there and I read *The Lancet*, and I read physiology, basically, wanting to be a physician. So when I came to take the final exam, I was halfway through in my reading to the MRCP. I got the Membership two years after I qualified. You could take the exam 18 months after qualification. I took it at two years. I was working for a chap called William Phillips, who was a good physician, and he was an examiner for the College. And they were going through the marks and they said, 'Where does this fellow come from?' And he said, 'Cardiff, of course.' [Laughter].

TT: When you qualified, with your Cambridge degree, you did house jobs in Cardiff?

EP: Two house jobs, a Medical and Surgical Unit, and then the Resident Medical Officer job when I was Head of the House Staff at the Royal Infirmary, I was in my first administrative job effectively. I was an SHO running the housemen, and being responsible for the Overnight Casualty Department and the arrangements for that, and being head of the mess. So if there was a dinner in the mess, I would have to arrange it. Then having got the Membership, my house job ended at the end of January; and I thought, 'I really should go to London.' So I looked for jobs and I found one at the National Heart Hospital and worked for Paul Wood for nine months as his houseman, and we got on well.

TT: What was your job when you were working for Paul Wood?

EP: I was clerking every case, and looking after every patient, doing everything. Cardiovascular medicine, there were SRs and people around and there were two of us, Resident Medical Officers; we had our own little flat in the hospital, we were on call all the time and once the other chap was on leave and I didn't get out of the hospital for six weeks, because I was on call. One of the SRs said, 'You really must get out sometime, I'll come and do an evening for you.' We had 60 or something beds in the hospital and if a patient came in I would clerk them. Paul Wood had been at the Hammersmith and this is the significant point, and then a job came up, a Medical Registrar job at the Hammersmith, and I applied for that and got it. I worked for Cuthbert Cope and after the first five months, the Professor, Sir John McMichael said, 'Cuthbert, I want that young man to come and work with me.' McMichael was the pre-eminent clinical scientist in Britain, given an FRS for his work on the cardiac catheter work with Sharpey

Schafer, and to work for him was a great privilege. It wasn't so much training, it was just being around, and at coffee time, on a Friday, he would come in and we'd discuss the morning's *Lancet*.

At the interview for that job they said, 'Would I be prepared to be seconded to go to Nigeria?' And I said, 'Yes, I'd be interested in this,' because my mother, widowed for some years by this time, used to have recitals in our drawing room at home for either Vellore or Ludhiana, the women's Christian Medical School. The environment of overseas work was very real. My aunt had been a missionary, many of my friends at Cambridge were missionary doctors. My best man went to Kenya, one of my closest friends, who went to Bart's, son of a Harley Street surgeon, went to Nepal, and so on. So it was in the whole sort of field and would I be prepared to go to Nigeria for a year, 'I'd love to!' I said. I went to the teaching hospital at Ibadan for a year six days after we got married. Helen was teaching, she'd come down from Somerville, where she read English. So she came to Nigeria, being a very good teacher and a very clear mind, she had no difficulty in teaching of course.

TT: Can I just ask you about this request 'Would you take this secondment?' What was the link?

EP: The link was between the Professor of Medicine, in Nigeria, Alexander Brown, Sandy Brown, who died at 59 of a coronary in Ibadan. He was the first Professor of Medicine, he went there in 1948. And Harold Scarborough had also been to Nigeria to work for three months' sabbatical in Ibadan with Sandy Brown early in 1960. So Helen and I went to see Harold at his home in South Wales for him to tell us about Ibadan. And once there I got into EMF, endomyocardial fibrosis, with Derek Abrahams, who had been a physician at the London (Hospital), and was a really bright, interesting totally unconventional person. We worked quite well so I said to Hammersmith, 'Can I have another year here?' And they said 'Yes.' By that time I was collecting my MD data. And we were having enormous fun, it was going very well, we were doing all sorts of interesting things. We were passing cardiac catheters and in the end the trans-septal catheter came and we passed those. We were right at the front edge of medicine and we got our major papers in the *Quarterly Journal of Medicine*.

TT: Could you say a little bit more about what you found when you went to Ibadan?

EP: I found an excellent teaching hospital opened in 1957, it was a beautiful building, very good Nursing School with an expatriate principal, high standards. It was still under the colonial Government, and no expense had been spared, and it was a very elegant teaching hospital doing elegant work. The people who were there all wanted to do something for Africa. John Lawson, who was a privileged man, he'd been to Clifton and Trinity Cambridge, I think, was Professor of Obstetrics. He was a card-carrying Labour Party member although privileged, and he went to Ibadan because he wanted to serve people. That was the general feeling. There were others who had come up from South Africa, Ralph Hendrickse was one – he never recovered from being marginalised in South Africa. It was a very stimulating environment.

TT: What were the main clinical conditions you saw?

EP: We did and saw everything. I learned to do renal biopsy and did many. I did liver biopsy, I did pleural biopsy, I passed polythene catheters at the bedside, we passed proper cardiac catheters in the Radiology Department – we did everything. Acute emergencies – there was everything. Pneumonia was common, we wrote a paper on pneumonia with jaundice with one of the pathologists. People came late in disease, there was advanced heart failure, there was lots of renal failure; we saw everything. There weren't referrals, people just came. A person came to the polyclinic, which was run very well, and this was the same in Northern Nigeria later. The person came to the polyclinic and they were seen, they were sorted, and through a triage system they were sent upstairs to the wards.

TT: And it was also a teaching hospital. Were you a formal part of the university?

EP: Yes. I was actually employed by the teaching hospital, and Derek Abrahams was employed by the University. So the Lecturer and above were University, the SRs and below were employed by the hospital, but there was no conflict between University and hospital because there was no private practice, and people were all employed within the Government University/hospital system. And it was just enormous fun. Then Derek went on leave within three months of my getting there, and I had charge of 30 acute beds and an SHO and a houseman. And the autopsy rate of 95 per cent. So there was no hiding place and we had five students per firm. And so I had to run 30 acute beds, I'd been qualified just five years. It was a marvellous, marvellous training school. So when I came back to Hammersmith, clinically, I was years ahead of my contemporaries. At Ibadan we had to get on with it.

TT: Can I just ask a little bit about your personal life at this point. You're just married?

EP: We were just married. I married Helen and we are still married 56 years later. We were both practicing Christians and have stayed so, and we believed that we had work to do. But I was seconded, I wasn't going as a missionary or anything, and the decision to stay on was the academic decision to do an MD, which I did and did a Cambridge MD on endomyocardial fibrosis. And sadly nothing much has happened in that disease ever since. Helen thrived. She gets on wonderfully well with people, she's a very good teacher, and she taught first of all in Ibadan Grammar School, which was a church foundation and then she taught English in the School of Nursing, and then she taught in the Nigerian School of Art, Science and Technology, which was the sort of bridge between university and secondary school. And just to extrapolate from that, when we went to Addis, she taught in the English Department, but then in northern Nigeria where the secondary schools were lamentable and weren't preparing people for university, the Vice Chancellor established a School of Basic Studies at Ahmadu Bello University, which was the bridge between secondary school and university entry. And Helen taught in the School of Basic Studies, and she wrote a textbook there which Macmillan published and reprinted for that group of students, which was critical to the development in Nigeria because otherwise every university place would have been flooded by people from the south.

Adam Wilkinson: Can you just say a little bit about the switch to Addis Ababa, and how you ended up going to Ethiopia?

EP: Yes, I can tell you about that. We came home from Nigeria in the freezing, freezing February/March 1963, and we arrived in snow. It was cold. I then went straight back to the Hammersmith, and it was difficult. I was still working on the MD, and it was quite difficult to adapt. I enjoyed the Hammersmith, I was just a routine registrar, then I was promoted to SR and then the next year, Sandy Brown from Ibadan said, 'We'd love you to come back, but you have to find money.' I didn't understand anything about grants and so on then, but there was no money, so we didn't go back. The next year a man called Oscar Barry, who was an orthopaedic surgeon and had gone to Ethiopia as a missionary was Dean of a new Medical School in Addis, which His Majesty Haile Selassie wanted. And then he came home to London. In London at that time, the CIBA Foundation ran colloquia, symposia, and it was a big thing to be invited to one

of those. They were important scientific landmarks and Sir John McMichael got me invited to one on cardiomyopathies for my EMF work. All the absolute top people went to it, and there was I, a sort of small boy looking at these great men.

The chap running the CIBA Foundation was Gordon Wolstenholme a great performer, a wonderful man, very kind, and he had been appointed by Haile Selassie as an Advisor to the Haile Selassie Prize Trust. So he exhibited that well known syndrome, which I haven't yet written a paper on, of a man going to Africa for the first time in his fifties and he comes back and he thinks the sun is shining from everywhere in Africa [laughter]. Gordon came back, 'Addis Ababa is everything. It's wonderful. The royal family is everything. It's absolutely wonderful.' Oscar went to him because he'd met Oscar in Addis and Gordon said, 'Oh, I know a man you should invite to come to Addis Ababa. It's Eldryd Parry. He came to one of my symposia.' So Oscar came to me and said, 'Would you come to Addis Ababa to help in a new Medical School?' By this time Oscar was no longer Dean, and the job didn't exist, but I accepted [laughter]. And Helen and I felt that this was God's purpose for us, an invitation to go back to Africa, and in doing so we cut the umbilical cord of British medicine. It was that decision. I'd applied for one job. I'd applied for a job at Bart's as a Consultant. I didn't get it, quite rightly. Tony Dawson, who became Queen's physician, got the job, and I was years away from Tony Dawson.

Gosh, how they did things in those days. I called on every member of the consultant staff in their rooms or in Bart's, and I went to see the Queen's physician, Sir Ronald Bodley-Scott in his rooms in Harley Street. 'Good afternoon, Dr Parry. What would you do if you came to Bart's?' I said, 'I would start a clinic for immigrants.' 'Thank you very much for coming to see me.' That was it.

And then the Wellcome Trust said, 'We will support you to go the first year to Addis Ababa.' So I went to Addis to look at cardiovascular disease in Ethiopia, and I wrote about ten descriptive papers on different forms of cardiovascular disease. And it was when we were there that I was working with Anthony Bryceson, and we were treating relapsing fever, and we saw the most extraordinary reaction: a Herxheimer reaction. We sent a small paper to *The Lancet*, a preliminary communication of cardiovascular changes in acute relapsing fever. And then two medical students from Oxford wanted to do an elective with us, and we decided to study it, and we had the first paper in *The Lancet*, 'Leucopenia and fever in louse borne relapsing fever'. It was beautiful. I mean it was classical bedside clinical science with a sort of Hammersmith pattern. We put an indwelling

needle in, we took bloods every 15 minutes, we monitored everything including the white cells and the presence or absence of spirochetes, the heart rate, the blood pressure and so on, and it was a classic paper. I came home to the Hammersmith because I was on a WHO Cardiomyopathies Group at the time. We'd had a meeting in Jamaica, and I went to the Hammersmith, and I said to Moran Campbell, 'I've got patients with a respiratory rate of 80, can you send me someone to come and work it out?'

So Moran said, 'Yes, I'll find you a young doctor.' So he sent David Warrell, who had never been to the tropics, and Helen Pope, and they got money from the Wellcome Trust to come and do a study on the Herxheimer reaction with respiratory physiology, basically extending the work we'd done. That went brilliantly, and we had papers everywhere, a galaxy of top level papers. As a result of that, I think I was elected to the Association of Physicians which meant more to me than a Fellowship of the Royal College of Physicians (FRCP), which came very soon. I was then invited to go back to Northern Nigeria, and that was hard because we loved living in Addis, it was very nice. We had a wonderful house where the children were going to school. Then we had an invitation to go back to Northern Nigeria by Ishaya Audu. He was one of the first students to enter the University of Ibadan, he was a Northerner and Northern Christian. His father had been an Islamic teacher, he'd become a Christian, and became a wonderfully strong person. He was a very great man, became Foreign Minister. I had taught him at the Hammersmith when he was on a short course in medicine and I was a SR., and I got to know him in Britain. So when he wanted a Professor of Medicine, he wrote to me in Addis and said, 'Would I be prepared to go?' And Addis was going so well, and the papers were flowing, and it was hard to leave. Then I went on a prospective visit across Africa in the middle of the Nigerian civil war.

When I flew into Lagos, a day or two before, a Biafran plane had flown in and dropped its homemade bombs. It was a difficult time for the country. But we had loved Nigeria and got on well, and if you're given an invitation by a senior African, you have to think twice before refusing it. It's a very difficult one. My first going to Africa was a secondment, the second was an invitation, not by an African but by a man from there, the third was again an invitation. And the fourth was an invitation. And you cannot really refuse, because they want you to do that job. And if you're really in the business you said, 'Well, if I'm going to serve you, I've got to do what you want me to do.' And actually that can cause a conflict. I once recruited (this is years later) a young man who came to me and

said, 'I want to go to Ghana to do some surgery.' I said, 'Of course, go to where I was, the Medical School I was in Kumasi.' We got him a job. I went to see him a year later in Kumasi when I paid a visit. 'How are you getting on?' 'Oh, it's terrible,' he said to me. 'Why?' 'I get all the on-calls, they put me on almost every night, and I came here to teach.' I said, 'You didn't come here to teach. You came here to do what Ghana wants you to do.'

You cannot and should not, if you're going to serve, you cannot take your agenda with you. That's where Gates and the big donors have made all these mistakes. 'We're going to do this for you.' Sorry, it's the other way around. And the principle is very, very important. And in our charitable Trust, the principle has been, 'Where do you want to go, and how can we help you get there?' You haven't necessarily agreed to go, but when you're asked to take a job, you take it.

TT: So you take this decision, you leave Addis and go back to Nigeria at a very troubled time. How was that funded?

EP: I was paid by the University in Nigeria. They had a budget. And in Addis I was paid by the university for my second and third years, Wellcome said they'd pay for one year if the university would take over. Peter Williams of the Wellcome Trust arranged the first one to go to Addis. Peter came into the picture considerably later in Northern Nigeria when David Warrell came back and Peter and Murray Baker, from the MRC and ODA (Official Development Assistance), those two together enabled me to set up the department in Northern Nigeria with David Warrall, Brian Greenwood, Anthony Bryceson, Andrew Tomkins, John MacFarlane, *et al*, Roger Sturrock. A galaxy of talent.

TT: What date was that, Eldryd?

EP: We went in January 1969 and I was Professor of Medicine there until July 1977, and in 1976 I was invited to be Foundation Dean of the Ilorin Medical School. Now Northern Nigeria was going wonderfully. Helen was teaching, as I've told you, we were churning out data and the students were doing fine. And then Oladipo Akinkugbe, who is a Fellow of Balliol College and who had done a DM with George Pickering, an elite person in every way, was asked to found a University in middle belt Nigeria. At that time there were Universities in the North, in Lagos and Ibadan in the south and one in the mid-west, and then middle belt Ilorin.

And he said to the Head of State Obasanjo, 'I will do it, if you can give me a Medical School,' and he said 'Yes.' And this was 16 years after independence. And Akinkugbe said to me, 'I want you to become the Foundation Dean.' I said, 'Look, this is 16 years after Nigerian independence.' He said, 'You're the man I want. Leave the politics to me, will you do the job?' So I went to Harold Scarborough, and I said to Harold, 'I've been invited. I can't go there, this should be a Nigerian's job.' He said, 'If you've been invited by Akinkugbe, you cannot in his country say 'No'.' So Harold confirmed that and we went. So that was the reason we left Northern Nigeria, because of the invitation to go to Ilorin.

TT: And what did you find there?

EP: I had a blank sheet of paper and he said, 'You've got a Faculty of Medicine.' I said, 'Sorry, Faculty of Health Sciences.' So that was the first change. And we said, 'We're going to make a Medical School for what is needed by the people, not for what is wished by the staff.' So we were utterly, utterly radical and we said, 'We will take the students into the community on Day 1 of Year 1.' So once they'd learned to sign their names and all that sort of thing, I told the staff that this was a community-based Medical School and this was a Faculty principle. So anatomists, physiologists, surgeons, lived in the field with the students. Harold Scarborough went with a group of students to a village. I lived with a group of students in a remote village. We transformed them. When they went to Ibadan to do their clinical, they did very well.

I was helped in this because I had looked for ideas and help and I went to Maurice Backett The first dean in Nottingham, who was setting up a new medical school in 1976/1977. I went to see him and I said, 'What do you do about teaching statistics?' He said, 'Teach statistics? Do you teach about a hoe? You use it.' And suddenly I realised, you don't teach about epidemiology, you do it. So we took the students and we lived with them and we said, 'Look where we are going. Let's go down and have a look round.' So we looked at compounds, we looked where they got the water from. We then went to the primary school and saw there was tinea capitis. So let's do a survey here. So there are 500 children, 50, 70 or 90 had tinea capitis, the prevalence rate. They'd done maths, and they were excited. And then we looked at how long people were sick. Farmers were sick. And we found that ten per cent of the farming year was lost through sickness and snake bite, and all sorts of common problems. At the same time the students sat in the primary care clinic attended by a dispenser, and saw everything. A woman came, it was deep in the bush, one lorry went once a week, that was all, with

an ulcer the size of a saucer. Normally you put *tulle gras* impregnated gauze with Vaseline on the ulcer. So we said, 'We've got no impregnated gauze. What have we got?' Let's go to the market and see what we can find. And we bought some fabric and we folded it over and we cut it in squares. So we had a piece of fabric with little holes in it. We found a pot of Vaseline in the market, and we bought that, and we rubbed it in, and we watched the ulcer granulate in from the outside. And so is it surprising that the students were motivated? And one of my best slides is showing the energy cost of yam farming. And we went out at five o'clock one morning with the students deep into the bush, half an hour's walk, and we started at six a.m. when it was cool. We watched a young farmer use a hand plough to make yam mounds. And he lost two kilos in two hours, his heart rate stayed at 120 throughout, his respiratory rate was in the upper 20s. Now you don't need to teach exercise physiology in a lecture. You do it. And that was revolutionary at that time.

And then Akinkugbe was invited by the Head of State to go and be Vice Chancellor somewhere else, and a new Vice Chancellor came in who was a surgeon, and I was warned within a month of his getting there that senior names were going to fall. I suddenly realised what was going on, so I resigned. He couldn't understand what we were doing in medicine at all. We didn't have multitudes of Departments, we had broad divisions. We didn't want empire-building little Departments. We were in league with McMaster and Maastricht for problem-based learning, we had workshops done by McMaster people, and it went awfully well. One colleague couldn't believe it; he was an Indian pathologist, but everyone else was on board.

TT: Were these links with people like Moran Campbell then at McMaster?

EP: I'd been to McMaster to have a look, funded by Ilorin in the February of 1977, when I was still in Zaria. I went to McMaster, I went to Duke, I went to Harvard, I went to Chapel Hill. It was useful. The problem: McMaster then was still experimental, it became doctrine later. Everything must be problem-based. Once you say that problem-based learning is a means to an end, it's not an end. I was part of a Group in WHO run by Tamas Fulop, which was composed of radical new Medical Schools: Beersheva, Albuquerque in New Mexico, Ilorin. Tamas Fulop was in WHO, a wonderful man. And he had a Group of us meeting. The second meeting we had was in Cuba in 1984, I think, by which time the problem-based people did a takeover bid, and it became, instead of

being radical new medical education, it became problem-based learning. Mad people from different places doing strange things, meeting together on how we can do things which are relevant in medical education.

TT: What happened when you resigned?

EP: Well, it was quite difficult. I had no job to go to, I had a few months, a letter came from the Inter University Council. The Medical School in Kumasi is looking for a new Dean, would I be prepared to go and be Dean? Next door to Nigeria bar Benin and Togo. So I went to Ghana where there was a wonderful Ghanaian pathologist as Dean - very, very able, scholarly man. Unfortunately, he saw nobody before ten in the morning, and there were other activities in the afternoon. And I was really invited as a rescue package. When I got there and within a week or two of arriving I was served with a writ to the High Court by the students that the Medical School had failed to provide them with a medical education. So I commuted to and from the High Court with the University's solicitor. The case we made was that medical education was more than three years, it was six years. We had this distinct plan: we were going to do it well and so on. And we won our case.

They needed someone with enthusiasm who knew how these sorts of things went, and it was a busy job, starting from scratch and restoring it and getting it going. And I didn't have clinical responsibilities, I used to go and teach clinically two afternoons a week and see patients but that was delicate because the physicians in the hospital were Government physicians and I couldn't really say, 'I'm going to have a cardiovascular clinic here,' because there was already one run by Government clinicians. But I could teach. And I did. And I taught physiology at 7:30 in the morning, because we had no physiologist. That doesn't matter at all. We had no physiologists. We had a good anatomist. So I said, 'Who can teach the eye in physiology?' The ophthalmologist. 'Who can teach the throat and the hearing?' The ear, nose, and throat (ENT) specialist. 'How about the kidney?' We had a chap who could do kidney physiology, physician trained in Germany – he could teach the physiology of the kidney. I said, 'Look, why do you need a physiologist?' And so we taught physiology from a clinical standpoint. Two students went to Sheffield to do an intercalated year. One got a first and one got a 2:1 in physiology, I think. Not surprising, because they had seen its relevance. And I taught, if I was half an hour ahead of the students, it was okay.

TT: And you stayed there for quite a while?

EP: Five years. And then I should hand over to a Ghanaian. And family needed us and had needed us earlier, so we decided it was time to go. And then Peter Williams invited me to come back to the Wellcome Trust to take the Wellcome Medical Museum into East Africa, but it was never thought through, so he said, 'Let's have the Wellcome Tropical Institute,' and I'd be the Director of it. But it was never thought through what would happen. So I commuted to and from Kenya and Tanzania, and Uganda and Ethiopia, saying, 'Would you like something for your Rural Medical Officers?' So we prepared wonderful materials, beautiful problem-based materials and they were excellent. But as with all things imposed from outside frankly, they weren't part of a system; there was no recognition in the Public Service Commission that if you did these courses you were given a grade up or an increment, and therefore they naturally fell flat. Who wanted to waste their time on things if there was no preferment as a result? And Wellcome weren't entirely happy with how it was going, and so they divided it up, and then at five years they decided to close it

TT: That's when I first met you, Eldryd, because I first went to the Wellcome Institute for the History of Medicine. You were across the Euston Road in the Wellcome Tropical Institute.

EP: Yes, that's right, it was very nice. But they never thought it through. It was marvellous, it was my re-entry into British medicine, because I sat ex-officio on the Wellcome Tropical Medicine Panel, so I got to know everybody. Harold Lambert, Roy Anderson, Richard Moxon – everyone. Got to know them all, which was wonderful. And from that I was able to start THET and so on. I see it as God's hand bringing me back, giving me a little pension – it put me back into British medicine. It was quite remarkable, but I felt terribly let down when they said they were going to stop it. And then Keith McAdam came along and said, 'Look, we can't pay you, but would you like to come to the London School of Hygiene & Tropical Medicine?' And I said, 'Yes, I'd love to, thanks very much.' And they said, 'Well, we'll make you a Senior Research Fellow.' So I had five years for the School, and that was fine, because it gave me the opportunity to travel and to do our charity work, and I taught in the School and still teach in the School.

TT: When did you establish THET? It really seems to be a culmination of a lot of your interests, your experience, your desire to serve, your desire to encourage people.

EP: Well, we got a charity number at the end of 1988, the beginning of 1989. Before that I'd had a thing called 'Parry Overseas Projects Account', and I had a bank in Great Portland Street and, but then that morphed into THET. And that was done with a great friend of ours who became a Deputy High Court Judge. He could probably have been on the Court of Appeal, but he didn't want to be a full-time High Court Judge, because he wanted to do other things, Richard Southwell. And he and I really started it with Helen, and we had a couple of others as Trustees, and that was where it started. It's because I had credibility. I'd been external examiner endless places, I'd given one of the named lectures in Kampala, the Albert Cook Memorial Lecture. I gave his Memorial Lecture in 1974. I put that in my Who's Who entry; I'm so proud of that one. Michael Hutt did a wonderful article in the *BMJ* showing the first drawing of Burkitt's lymphoma, done by Cook's brother, which I show now to my students. I gave that lecture in 1974 in Kampala when Idi Amin was in charge. I was external examiner. Because you've been external examiner in all these places, you knew everybody. It's a small pond, and it's easy to be a larger than normal fish.

TT: Can I ask you particularly about THET and starting that up?

EP: THET began with a philosophy, very simply that 'Where do you want to go, how can we help you get there, where are the gaps, how can we help you fill them?' It was not 'We will do this for you.' Initially in 1988 medical students were bombed out. The main streets of Kampala had potholes, shops were boarded up, no textbooks anywhere. So we started with books and a list of books. At that time the English Language Book Society produced cheap paperback in print subsidised by the British Council; it was possible to get a decent load of books, a complete shelf for medical students, quite simply. And we put lots of these into Mbarara, Makerere, Kumasi and two Ethiopian Schools. Students would take them for their course and take them back and it was lifesaving. And then we said, 'What else do you want?' 'We want you to develop our people.' So we began in that, not knowing where we were going, and we got a few through Master's at the London School, raised a bit of money here and there. And then it got a bit wider, and I used to go to Nuffield, and other such people and all sorts gave us money.

And we got grants and we started the links programme. The first four years of Comic Relief, we got one grant every year, and we did very, very well with grants, and I had superb people. At that time we took immense pains in interviewing. We shortlisted and we had eight on the shortlist. We gave them a numeracy test, we gave them an English test, and we gave them a reasoning thing, a piece

of paper with mistakes in it. And if they couldn't do that, sorry. And we then interviewed them. We then got them to debate a development issue, all four of them together, and then we asked them to give a presentation, and then we had a cocktail in the evening. They said, 'This is a fantastic charity. Look at the care they take in their recruiting.' So they all wanted to work for us because we took the absolute cream. My daughter Victoria ran this and she transformed it and then it mushroomed. Then she recruited Sarah Adams and she recruited Susana Edjang. Susana now runs one of the head of the United Nations Offices.

TT: What is the situation with THET now?

EP: The situation with THET now is that it's under a new Chief Executive, Ben Simms. We have got a huge grant from the DFID. We went into Somaliland early, and transformed health services in Somaliland. And that was thanks to Andy Leather who runs the King's Global Health Centre. He has now left clinical work entirely, and Robert Lechler wanted him to run it full-time, so he's running that. Andy was a wonderful colorectal surgeon, one of the most beautiful operators, and he worked with us too. THET was big in surgery in our early years, because it was a totally neglected area. That was why I was made an Honorary Fellow of the College of Surgeons; one of the people who came to work overseas with us was the former President Bernie Ribeiro.

Every year we used to run all sorts of things for skills for rural surgeons and so on. And Andy then started an intercalated BSc and a Master's, and instead of being part-time doing one month on and two months off, or one week on a month doing clinic work, he gave up completely and he's now running the Kings Centre, which is brilliant, brilliant. He's a superb person.

TT: One of the things looking at your CV, Eldryd, is of course prizes and honours that you've had.

EP: Not many prizes. One or two. The Frederick Murgatroyd Prize meant quite a bit because that's a physician's one given to someone under 45.

TT: Honorary Life Fellow, Royal Society of Tropical Medicine; Honorary Fellow, London School of Hygiene & Tropical Medicine. These are awards of recognition by your peers.

EP: Yes. I think the London School one means quite a bit to me actually, because I got it at the same time as Henderson, who obliterated smallpox. And the honorary degree from Kumasi. That's nice. In a way, as you say they are one's peers. But I think probably the honorary degree from Kumasi; it does

really mean something, yes, yes. But the other side of that coin is that no other African place has recognised anything I've done. And so you could say there's sadness on the other side of the coin. But of course, it's not the culture - perfectly understandable. Step down from a job, okay, fine, goodbye. Once you understand that, it's fine. So that's why I think Kumasi is even more special.

TT: Could I ask you a little, you've mentioned it two or three times in passing, your Christian faith? Obviously it underpins everything you've done and how you've developed your career. But sometimes you've just taken the challenges. I'm not sure you've ever developed your career.

EP: I've never had a career. I really have never thought in those terms. I hadn't really thought about career steps at all. In a way I suppose one's a bit liberated by that; the nice part is I haven't had to worry, because invitations have come. And that's been easy just to answer an invitation. And people say, 'But you've taken risks.' I don't see it as a risk at all. We didn't see it as a risk. We try, with our faith, we try to make it relevant. We don't want to be sort of pious on Sunday and you know, and we try to have it as part of our fabric. We're aware that feet of clay extend to the nape of the neck, most of us, we're aware of that. Helen is very good in this.

You know there's nothing magical about overseas service, there's nothing saintly about overseas service, it's been a joy. Just that. And I think that's so important. We've never been missionaries as such, but everyone's a missionary every day [laughs]. And the other thing which must be corrected is that I am apparently an important person because I've been a Dean in Africa and started a Medical School. I do not like this. We are engaged as a team and in any group it's not who is the important one or who is the cleaner, but who is the ordinary person to affirm in their job. It is so, so important. And you know why do I go into the office? They don't need me in THET now, they're booming ahead talking to DFID whether they get £15 million or £3 million or whether DFID will drop them, I don't know. I go in there just to put my hand on the arm of someone and say, 'Well done,' you know. That's all really. We have got a big chronic disease programme going in Ethiopia, which is very exciting, and I went over the draft yesterday of a paper for *The New England Journal of Medicine* which we're going to have a try at. Working with Magdi Yacoub, looking at the prevalence of rheumatic heart disease in rural populations

TT: One of the things I remember you saying to me some time ago, was that you felt your job was to train somebody to replace you. Do you think that has been successful?

EP: Partially, I think. As far as THET is concerned, I was Chair and I think we just handed over to different Chairmen. I think that in other places I handed over to an outstandingly good Dean in Kumasi. In Zaria there were a galaxy of people who were working with me then. There was no gap when I left there. In Ilorin I was replaced by a man who was a very good chap. I don't think, and as far as THET's concerned, I don't take any part in decisions. I'm not really there except going in and saying 'Hello.'

TT: You have been in some rather difficult situations where you've had to deal with both the little politics and the big politics. You've mentioned two or three occasions when you've had to manoeuvre, you've been caught between Government officials and clinicians. How aware of these problems have you been? It seems to me it must play quite a large part in how you could operate successfully?

EP: I think that there's an immense amount of goodwill towards a foreigner if they are seen to be on the side of the local people, however that's expressed. African people are welcoming and are trusting if a person can be seen to be wanting their benefit. I think, it's possible to do things which might be seen in a British context as political, much more easily. I think that mistakes also are understood as being usually naiveté. Once I was taken aside by two of my juniors, one SHO and one houseman I think, and they said to me, 'Cool it, Prof. You are too tough with us.' I went home that night and like Peter I wept bitterly. I said to Helen, 'Have we undone all our work over all these years?' That was in 1973, 1974 something like that, in Nigeria. It was terribly important, but terribly hard, because what they were saying is that I was not behaving in a way which was constructive to them, was putting them down. And they were jolly brave to come and tell me, but at least they thought I could listen.

TT: What did you do when they said that? When they said, 'You have been too tough on us?'

EP: Oh yes, I just said, 'Look, I'm sorry, thank you very much for telling me,' and I just didn't push them so hard. And maybe I was too hard, I hadn't learned; I probably exposed people in public. You know, 'You shouldn't be doing this,' instead of taking them aside afterwards and saying, 'Come on, you mustn't do that.' I remember doing that once, and it was an awful mistake.

It's awfully painful when things go wrong, and it's more sensitive when they go wrong in a foreign culture. It's horrid when they go wrong anywhere, but it's more sensitive in a foreign culture because here weren't many friends you could talk that sort of thing through with very easily.

TT: One other question is WHO. Have you had much dealing with them?

EP: No, not much to do with them. I've had three things I remember: a chap came from WHO and told us to have education objectives. Associated with that, when I was going to start Ilorin, and when I was in Zaria, I realised that I needed to know more about medical education. So at my own expense, I spent a week in Geneva with Tamas Fulop and his Group, and then Jean-Jacques Gilbert who wrote a book on educational objectives for the WHO, which is very good. In two different years I went there for a week just to get the language and to understand a bit about objectives and education and so on. The only other association with WHO has been for the professional Groups. The Cardiomyopathy Group and the Radical Medical Schools Group. The Cardiomyopathy Group, I was in for a few years and then just left, I think, and the Medical Schools Group, when I left Ilorin, it went anyhow.

TT: Eldryd, it's been a great pleasure to learn so much about our career. Thank you so much.

Figure 9: Professor Judith Petts

Professor Judith Petts CBE PhD AcSS FRGS FRSA (b. 1954) graduated in Geography from Exeter University in 1975. After a few years in business she became a Research Fellow in the Institute for Planning Studies, University of Nottingham and then in the Department of Chemical Engineering, Loughborough University on a project on major hazard control. In 1987 she moved into the Centre for Extension Studies (CES) where she developed the first postgraduate part-time course in hazardous waste management. In 1996, she became Director of the renamed Centre for Hazard and Risk Management and was awarded her PhD by publication. She moved to the University of Birmingham in 1999 to become Professor in Environmental Risk Management, then Head of the School of Geography, Earth and Environmental Sciences and in 2007 Pro-Vice-Chancellor (Research and Knowledge Transfer). In 2010 she moved to the University of Southampton as Dean of the Faculty for Social and Human Sciences and then Pro-Vice-Chancellor (Research and Enterprise). She has held multiple advisory appointments including to a House of Commons enquiry on waste management, she was member of NERC (2000–2006), and of the Royal Commission on Environmental Pollution (2005–2011). She was a Member of Defra's Science Advisory Council (until February 2016). She was appointed CBE in 2012 for services to scientific research. She has been Vice-Chancellor of Plymouth University since February 2016.

9 Petts, Judith*

Lynda Finn: Can you say something about when and where you were born and your early childhood?

Judith Petts: I was born in Kent in 1954 and my father was in retailing becoming a manager of a major store in Portsmouth towards the end of his career. My mother was a home mum, but she was a cost accountant by training. I have an older brother, now a very successful civil engineer. We moved to Portsmouth when I was about three, so I was brought up there. A working-class family not part of the naval component of Portsmouth, although many of our neighbours were. I went to the local infant school and then onto what was the Northern Grammar Girls School, it's now a comprehensive school, Mayfield School. An ordinary background a very strong family, a loving and supportive background, and I ended up being the first person in my family who went to university. At school, geography was my strongest subject always. Like many people at school at that time, you had to make a choice between either doing the sciences or doing languages. So I gave up most sciences. I was useless at physics, liked chemistry, did a bit of biology, but gave up the sciences to study languages. The subject of choice was geography with a bit of history. And so going to university I chose geography, which was quite a shock to my geography teacher in the Sixth Form because in those days most girls either went into nursing or education, or to be a secretary. So when I said I might like to go to university, she was quite surprised but on the other hand, very, very supportive. Similarly in those days girls' schools didn't provide direct routes into Oxford and Cambridge; you would have to stay on for another year to do an entrance exam, so there were very few did this. It wasn't something I ever thought about doing, but chose to go to Exeter University, to do geography.

LF: How did you find Exeter?

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* Edited passages from the interview conducted by Ms Lynda Finn, for the History of Modern Biomedicine Research Group, 10 December 2015, in the University of Southampton. For more details, see 'Related resources' at the end of this volume.

JP: If you weren't going to Oxford or Cambridge in those days, there were a set of universities that were regarded as the next best to go to. Exeter was one, Durham was one. I did go for interviews at Royal Holloway in London, but Exeter was a good choice because of location: far enough away from home to feel as though you've gone away, beautiful landscape. I still very much love the Devon location and indeed am now going to live there.

LF: Did the course and Exeter live up to your expectations?

JP: I can remember in the first year, 1972, being almost overwhelmed by the sense of being surrounded by all these amazingly clever academics and professors and what a privilege that was. The course was everything that I expected. I did a subsidiary subject, history. For geography, you had to do some physical geography and some human geography, you couldn't specialize too quickly. It was a very rounded course, which is a real benefit of having geography as a degree. I noticed when we started going on field trips, how from my school days I had not really done geology or the earth science side of the subject. Again, that was something in a girls school you just didn't really do to any extent. I slightly at odds with the chaps around us who'd all done the science end of geography. But the course was hugely enjoyable, very much what I'd expected. Exeter was a great university to be at.

LF: Did you have a career plan in doing your degree, or did that come later?

JP: I would say that I've never had a career plan in my life. I got a 2:1 and I wanted to go into what I saw as the real world, and went into retailing very much like dad. I went as a management trainee to John Lewis. But within eight or nine months, I realized this probably wasn't the career for me. But I didn't have any sense of going on in university or academic life at that time. Then an opportunity came up in something called 'The Unit for Retail Planning Information'. As part of my human geography I'd done a lot of urban planning and indeed quite a bit of retail planning, so this seemed like a good move, it was sort of harping back to what I'd done in my degree. It was at a new Unit, it was at the time of growth of hypermarkets and superstores, the very first ones being built. So there was a lot of work being done on analysing where they were, why they were there, what effect that were having on ordinary high streets.

The one at Chandler's Ford was the very first hypermarket – opened as Carrefour in 1974 – and we did some analysis on high street changes around these. It was a small Unit, I can't remember how many of us, no more than ten people. Very much early days, and my role was to log and follow the development of these new retail activities.

LF: Where were you living?

JP: That was in Reading. However, my fiancé, who I'd met at university, was very much an academic, and we were due to get married in 1977; he got his first academic job in what was the Dorset Institute of Higher Education – now Bournemouth University – and so I needed to move, find another job. I saw an advert for Barclays International Economist Intelligence Unit; they had just moved to Poole. And I applied, it was a macroeconomics job, advising bank customers on countries of operation, regions of the world, so that's a sort of geography. The Unit was made up predominantly of economists, many with PhDs in the subject.

LF: What was your job title?

JP: I was an Economics Assistant, I think. I was given the Middle East to monitor, and the movement of the US dollar. Great fun. It wasn't a place I was going to stay at, but it was hugely enjoyable. I found that I could do something that I didn't think that I would be able to do, and it was challenging, it was immediate, it was the real world, things were happening. In covering the Middle East, it was the time of the fall of the Shah in 1979, and so you were advising bank customers or writing advice on whether customers or corporate customers should stay in countries or get out, things like that. The movement of the dollar was not too difficult to monitor, and we used to give reports on the potential movement over say one month, six months, a year, things like that.

LF: So you were there for how long?

JP: For about two and a bit years. Then my husband got another academic post at the University of Loughborough, and we moved to the Midlands. And there was another job to find. I was unemployed for a few months, but got a job at Nottingham University at the Institute of Planning Studies. So going back to a bit of geography, a Research Assistant on a project to look at environmental impact assessment, which was just starting to take off. There was no legislative requirements in those days, but with the development of the oil industry in particular there was beginning to be environmental impact assessment work

done. I had a project to monitor what environmental assessments were being done, again looking at their development, what was driving them, gaining experience of conducting Environmental Impact Assessments (EIAs). The Institute of Planning Studies was a postgraduate institute, training planners for Royal Town Planning Institute accreditation. I was very much back to feeling as though this was something I was trained to do. But, as with all fixed-term research posts, the job came to an end. Then it was time to find another job.

There was an advert from the Department of Chemical Engineering at Loughborough University. They had a very, very early interdisciplinary project. I don't expect that that word was used in those days but this was the old Social Science Research Council (SSRC), and the Science Research Council (SRC), coming together to fund a very big project on major hazard installations, led by Professor Frank Lees. I think all he really knew was that he needed a social scientist to look at the offsite implications of major hazard installations.

The chemical engineering team was: Frank, Trevor Kletz, who had retired from ICI, and John Withers. They were the engineers doing the modelling of gas releases, explosions, etc. and I was looking at the off-site implications from the land use planning point of view, but also doing very early work on perceptions of risk. New legislation arising from a new set of major hazard controls, particularly following the Flixborough disaster in the UK in 1974 had led to the setting up of a Major Hazards Assessment Unit in the Health and Safety Executive (HSE) and they used to provide, still do, advice to local authorities on the planning of new installations. The work from our project at Loughborough attracted their attention, and they asked if I could be seconded to the Major Hazards Assessment Unit for a year. So I'd remain a member of staff at Loughborough, but be seconded to HSE Major Hazards Assessment Unit, MHAU. Fine, I thought. However, they had just moved to Bootle. So this meant going to Bootle during the week, staying in some digs along with a number of other HSE inspectors, who all had their main homes elsewhere in the country. I spent a year, absolutely fascinating, working with eminent chemical engineers, PhDs in chemical engineering or science subjects, and I used to look at the advice that they were generating, and then challenge them about how they think it might be heard and accepted among local authority planners. I also did work on risk tolerability and acceptability, looking at the criteria of what is an acceptable or tolerable risk, which is where concept of 'one in a million', 'lifetime' or 'annual risk', has evolved from.

That was quite interesting work. For a year I'd go up on a Monday, often come back on a Thursday. And learning how to take an academic way of thinking and turning it into advice to a Government Department. I can remember being mortified when the Head of the Unit at the time had seen my report, which I'd written as an academic at Loughborough, which I think was about 70 pages long, and said, 'Could you get it down to two pages at most?' and being really quite hurt that I might be asked to do this. So it was quite a learning exercise. Without a doubt that period of interdisciplinary working with the engineers, and then that year with HSE has really carved out what I have become as an academic and how I've always valued doing work in the real world with policy implications and providing advice to policy-makers and decision-makers. That's probably where most of my work has focused over the years.

LF: Can you say a bit more about turning an academic report into policy guidance?

JP: It's learning to write from the perspective of the reader and what they need to know, as opposed to an academic world where you're wanting to tell the reader your story, or your science, your finding. Also learning that you have to be robust in what you're saying. Not robust in the sense that you've got to be right, but having clarity about what you're saying and being sure that what you're saying is actually what's been found or observed. Perhaps as academics we sometimes have the luxury to muse upon our thoughts but you can't do that in policy world. The other thing I learnt was the importance and the ability to challenge other eminent experts on their findings and just to ask the 'Why?' and the 'How?' questions. That was partly my role to assist them turning very important advice into usable advice. Again, learning from the perspective of the reader, thinking about what the reader would need, what a decision-maker and a local planning authority might need, and looking at how that advice might be read or construed, interpreted or misinterpreted, and making sure that what, in this case, the HSE needed to get across, would be effective. Although they were statutory consultees, they gave advice and guidance, it was left to the planners to make the planning decision and either follow the advice or not. Ultimately, there might be a right of appeal to a Secretary of State, but that very rarely happened. So it was really important for HSE to get its advice across.

LF: What happened at the end of that year, after the secondment?

JP: I've risen from being a Research Assistant to being a Senior Research Fellow, and the job's coming to an end again. Another classic of the academic world. At Loughborough, we had something called the 'Centre for Extension Studies' (CES), which ran postgraduate part-time and continuing professional development courses. Sonia Withers (John's wife) had been leading in CES a programme of waste management courses, but she was due to retire. So the opportunity came for me to take over the job from Sonia of running, in those days, hazardous waste management courses, an introductory course and an advanced course. There was a whole set of other types of courses run in CES, some in health and safety areas, some also in the security area. It was a small unit, but very much focused on continuing professional development. There wasn't a postgraduate qualification as such. I got the job to take over from Sonia, a very influential lady in waste management in those days, particularly in training and development work for the industry and local authorities.

This was when the industry was beginning to find its feet in terms of professional status. I also became an Education and Training Advisor to the Institute of Waste Management, simply because there were very few of us doing training in this field. The Institute was developing its membership routes that might eventually lead it to getting chartered status, but that was thought to be some way off. There was also a sense in which waste management needed to professionalize. So I developed the courses into a Postgraduate Diploma in Hazardous Waste Management, and we recruited the first set of students, some of whom I've kept in contact with over all these years. These were people in a whole range of industries. Doing a part-time, postgraduate course, we weren't going to necessarily find people with academic qualifications, we were, in modern language, 'accrediting prior learning'. I went to visit every potential student that we recruited onto the first programme, and one of the early participants was a very senior manager of one of the landfill companies. I remember when I asked him, 'So what qualifications do you have?' he said 'The only piece of paper I have is my HGV (heavy goods vehicle) licence.' Here we had a very senior manager in the industry who was keen to come and get a qualification.

So I had people from the waste sector, the chemical waste treatment sector, people from the local authorities, and also environment and safety managers from the big chemical and pharmaceutical companies. There was a classic mix of students who took those early courses. The courses were run using external lecturers from within the industry, particularly on the legal and transport sides. They were modular, one week courses, very intensive teaching over a week with

lots of site visits and project work. An absolute classic where the people in the room knew more about the subject than many of us who were organizing the courses. Our role was really to energize their knowledge, bring it into the room alongside the expert lecturers that we had. I used to lecture on the risk side – risk assessment, environmental assessment; the things that could be brought in from my own expertise. These were hugely enjoyable, but hugely exhausting courses. But by complete serendipity I was now working with the waste sector.

LF: Can you say a bit more about these courses.

JP: They were one-week blocks, with five modules over a year. And there was a project, a sort of dissertation that they did at the end, which was nearly always related strongly to a piece of work that their company or local authority were interested in. Students would stay on campus for the week, and we would go for site visits, we would do project work, we'd have evening lectures, we'd always have a dinner on the last night. You really got to know people very well, they got to know one another very well, and of course benefited hugely from being able to sit next to perhaps a customer or a regulator. Very intense working, hugely enjoyable, and the first diploma ceremony we had, the Vice-Chancellor came and gave out the diplomas and people came with their families, and it was just brilliant to see what universities can really do for professionals who've come back to learning, often coming back with teenage children who were just thinking of going to university, and here's dad or mum getting their first qualification. There's that great sense of pride and enjoyment you get when you see people being successful.

LF: What challenges did the students face having not had formal education?

JP: Some of them had actually got degrees, so again in the room you had some with degrees, some with just their HGV licence! I think the challenge was with returning to learning. Certainly for those who had relatively little formal background, perhaps left school with O levels or whatever, that's the challenge of not only writing a business report, but just writing an essay for the first time.

LF: How did the course accommodate that, and nurture those students so that they did learn?

JP: The course was a very small group, about 20 students each time, so you were able to spend time working with them individually. We always set aside time to talk to people, give back their work and go through what was in it and bringing people on to develop their style of writing etc. But also not being soft, being

very clear what was needed, helping people to make those steps. For those, of course, who had come from a far more academic background, perhaps already had a degree, it was much easier, and you could often help those people to really challenge themselves to a different level of writing and thinking. So there was an opportunity to develop individuals as well as cover the fundamental subject matter. We always used to set essay questions that enabled the breadth of background and knowledge and interest to be brought into people's essays. One of the first students, in fact, was Jeff Cooper.

LF: It sounds like a very fascinating and highly rewarding piece of work?

JP: Yes. I think so. I was writing a lot in those days on environmental assessment for hazardous waste facilities; my first book, with one of the consultants, Gev Eduljee was on EIA for waste. Gev Eduljee is a director of SITA now. SITA is a French-owned waste management company, one of the largest. We wrote a book entitled *Environment Impact Assessment for Waste Treatment and Disposal Facilities*. What a long title. There was no literature in those days on that topic. I was also working on risk perception and risk communication work. Those two strands came out of the work and at the same time, we used to run in-house training courses for companies. I also developed a suite of contaminated land courses, because that was starting to rise in awareness; and legislation and regulatory control, particularly for the consultancy industry, on short courses. We also ran courses in-house for water companies, land owners of contaminated land etc., and we had to run a training course in Hong Kong for the landfill operators as part of a regulatory requirement for training. A colleague, John Hinchcliff and I went out to Hong Kong for a week to train the landfill operators in waste management. In those days they were keen to have UK guidance and regulations translated directly into Hong Kong practice, which was slightly odd, because these were huge landfill sites reclaimed from the sea, with very different geology and also wastes.

We would take, say, Waste Management Paper 27 on landfill and try and see what it meant in the Hong Kong situation. All the courses really did develop around regulatory development in particular. It was very early days, in terms of skills development in the industry, and of course the early days particularly of European directives, bringing a lot of regulatory control into the UK.

LF: Did Loughborough have any obvious competitors? Were there other higher education institutions developing similar work or was Loughborough ahead of the game?

JP: Loughborough was slightly ahead of the game. There were colleagues at Sheffield, such as Chris Coggins, who were developing courses also, and there was a very strong waste management research group at Imperial College. They did occasionally do some courses, but they were more in the science and research area of waste management. There were relatively few, which is quite interesting to reflect on, and I suppose there is that slight tension of universities operating very near to practice. In fact, I hadn't taught an undergraduate student until I went to Birmingham University in 1999. It was very much professional training and, I think, still for many universities, that is not the dominant part of their business.

LF: And to what extent did you find that earlier learning about how to write for the reader, how to write for the consumer rather than the producer, helpful in your work?

JP: Oh, hugely helpful, because I also learnt the skill and the ability to listen to what people are saying is an issue or a problem, and being able to turn it round to provide information, and also to turn back questions to them, taking the reader's or the knowledge-user perspective and turning it around. I'd also started to do sets of public engagement work around controversial issues. In that work, over my career, I've spent hours and hours in public groups, focus groups, public advisory groups etc., listening to what people are worried about and bringing the conversation around that. I think it was part of a similar skill set. The research actually took off when, in 1994, Hampshire had difficulty with a planning application for a municipal waste incinerator, which was to be sited at Portsmouth. Hampshire was under extreme pressure, being a county of chalk geology and very little landfill, while it did have incinerators. There was an urgent need to have a waste strategy which would lead to the long-term and strategic development of facilities.

I was watching this with interest and could see an opportunity to suggest that we might evaluate the public engagement exercise, which they commenced. So having failed to get planning permission for Portsmouth, they realized they needed to go back to step one almost, which was to ask the public what they thought should happen to waste in Hampshire. Hampshire was hugely ahead of the game in those days in bringing in an American consultant, experienced in public engagement in North America, but who ran a small company in London, to run their public engagement process. A very, very innovative process setting up advisory groups and working through from basic principles: what is waste, why have we got it, how have we got it, how much have we got, what

could we do with it, what do you think we should do with it in Hampshire and then where should we put the facilities? A very long engagement process, absolutely unique in its day. I wrote to Hampshire, who were actually using the advice of the Energy Technology Support Unit, who offered to jointly fund an evaluation. I got my first research grant and it all took off from there really. So this was 1994, real serendipity, in the right place at the right time, and I knew sufficient about waste at this time to be able to talk relatively knowledgeably.

LF: When did you leave Loughborough?

JP: Not until 1999. This was a research project, the first paper was published in 1995, very much an evaluation process, and I remained engaged with the Hampshire process. There were advantages because the family home was in Portsmouth; if I came down to Hampshire I could go and stay at home with mum. It was a good project to do, absolutely innovative, Hampshire was a really inspirational authority to be working with. It's where I learnt all about public engagement exercises and in-depth deliberative processes.

LF: Who were the people who inspired you in the field of public engagement?

JP: The key people in the Hampshire project were firstly Robert Lisney, who was the Manager for the whole project of waste management, strategy development, and very much the person behind the force of bringing the district authorities together for public engagement. The company was Pat Delbridge Associates. Pat was an American, experienced consultant, and it was her company who bought the public engagement exercise into being. Amanda J Grey was the key person, who organised and delivered.

LF: But clearly these people inspired you? This approach?

JP: The approach inspired me. The person who ran the company used to come over from the US about every fortnight to the UK. She had a reputation for being able to sleep all the way on the flight and then come straight into a public engagement meeting and facilitate a deliberative process. Hugely, hugely impressive. My role as an evaluator was to sit at the back and see what was going on, and then do surveys of the participants. That process led to a decision by Hampshire how to strategically go forward with its waste strategy. The public decision and guidance was very much to have three small facilities, three new energy-for-waste plants, rather than one large one, which was what had failed

with the Portsmouth agenda. The three plants have indeed been built, one at Chineham in north Hampshire, one at Marchwood near Southampton, and one at Portsmouth.

LF: And you found Hampshire County inspirational as a local authority?

JP: I think because they were able to go with something very innovative. People have often said that Hampshire as a county is relatively wealthy and may have the resources, that may or may not be true. But they were able to think outside the box, they were willing to invest in something new, having got it wrong by the normal process. They were willing to think outside the box, very capable staff inside the county to lead that, and also they were able to get the buy-in to the process from all of the districts within the county, which again can't always be achieved. But they had an end game, they had to have a solution to the problem and getting it by way of a public debate and discussion was the best way to go. We then took the Hampshire experience and did a lot of work with other local authorities: Essex went a similar route, Lancashire also I remember. Often local authorities would come to discuss experience and whether they should choose to do something similar, but these were expensive processes, a much more expensive way of doing things than going through a normal planning application and consultation period. This was prior to regulatory requirements for a waste management strategy as well. So these were early days, the middle 1990s, for that work to be done. We came through 1996 with the formation of the EA, and the courses then developed. We had a training course for the new EA, who had suddenly taken in these local authority planning waste regulator officers, they'd taken in HMIP inspectors, and they'd taken in staff from the NRA. So we won a contract at Loughborough to run a waste management licensing programme of training for all of the staff coming into the Agency. I think we had a couple of hundred staff came through at that time on short courses.

LF: And were you still running the courses that you'd founded?

JP: Yes, although colleagues had taken over. We were still running the diploma course as well, and were thinking about making it into a Masters course, an MSc.

LF: And tell me about the new course that you developed, once the EA had been born.

JP: Yes, so that was very much developed with the Agency and it was very much in the first instance, just providing basic understanding of what the law said about waste management licensing, but then also about the practice of licensing inspection, how licenses should be written etc. But the challenge for us was that as a university, we wanted to be able to challenge the staff from the Agency to think about what the guidance said, and why or why not a particular approach should be taken. I think for the Agency, that was probably challenging because they just wanted their staff trained in what the law said, but we were quite clear that if they wanted that done, it was probably best not to use a university. Our role was really to challenge experienced people coming from different authorities, different backgrounds, to develop waste management licensing skill sets.

LF: How long was the period of providing these courses?

JP: I can't really remember now, but certainly over a year. They were relatively short, three-day courses, something like that. By this time I knew quite a lot of people in the waste sector, also in the land contamination sector, and of course there was quite a bit of overlap between those two. I had developed quite a lot of work around incineration, dioxins, health risk assessment, public perceptions on incineration, which was always potentially problematic in terms of people's fears of new plants and proposals for them. So I had developed quite a lot of work looking at how people responded, what they needed to know, developed skills in understanding how health risk assessments were done, again working with environmental consultants. I started to be able to lecture on that as well, and learning also from health epidemiologists, health specialists, chemists. Learning the background of the pollutants but then learning how to translate that knowledge into things that people could understand as to the risks to them.

That's probably where the academic work started really to take off, in this quite rapidly changing waste field. Legislation was developing, new practice was developing, European directives were flowing out; it was a time of extremely low recycling, landfill was the dominant option. In those days we used to lecture on recycling targets and ideas of 30 to 40 per cent recycling, and I couldn't believe that that would really ever happen. It was a vastly changing industry. The rise of the very big companies as well and with the taking over of smaller, local companies, because the more legislation you have to be able to work to, the more controls you need, the more likely it is that the larger companies will survive. It was the days of the debates about the price, the cost of waste management, and whether landfill was too cheap. It was the growth of

landfill engineering, liner systems, learning from European and international, particularly North American, experience. New systems for methane collection and control, leachate management, all of these were rapidly developing areas of practice.

I continued to work with the Institute of Waste Management on the education and training side. They developed whole new pathways and training programmes for Membership, and eventually the Institute did get chartered status. So it was good to be involved in something that was really developing.

LF: Were there other countries so clearly in the lead that Britain could take guidance or learn from them?

JP: Certainly Germany, certainly Scandinavian countries, but of course Austria, Denmark, in terms of recycling. In Denmark, combined heat and power, the idea that you can build an infrastructure, with small plants supporting a small local community, taking waste, providing heat and power back to the community. And that they were able to put infrastructure in place to do that, pipework connections etc., and invest centrally; something that was very difficult in Britain to do.

LF: So why was easier for Scandinavian countries?

JP: Far more centralized planning process. In Britain you had to be able to bring together waste management processes and separate land use planning processes, and that made it very difficult to drive some of these newer technologies. On the landfill side, the German experience of landfill, the development of engineered landfill systems, we learnt a lot from, and the same coming from the United States as well. There was a lot of learning internationally and it's interesting of course that some of the biggest companies who work in this sector are the multinationals who operate across Europe and North America, Australia etc. So you saw the growth of the big companies with that multinational experience, bringing this into UK operations.

LF: When did you leave Loughborough and move to Birmingham, and why?

JP: That was 1999 and I was appointed to a Chair at Birmingham in Environmental Risk Management. And this was particularly to work in the Centre for Environmental Research and Training, which was a cross-university initiative, an interdisciplinary initiative, to bring together environmental research and training, bringing opportunities in for research, running seminars and events across Birmingham University. Then for the first time, I was

lecturing to first years on the environmental management programme, which were relatively new degrees. We had an environmental science degree and an environmental management degree. I was lecturing to undergraduates on environmental impact assessment, on risk assessment, on public engagement.

LF: How did that compare with the first courses you worked on at Loughborough?

JP: Oh, totally different because you're working with people who don't know anything so you're starting from a different place. All I would say is for students doing an environmental management degree or environmental science degree, on the whole they have a huge level of personal interest in the environment, and so almost like sponges in what they could get as information, but totally different to the professional. So I had to write my first set of lecture notes, I was a module leader for some second and third year courses. I then became Head of Geography and Environmental Science in 2001, and within a year was asked by the University if Earth Science could join us as well, so we formed a large geography, earth and environmental science activity. Again, hugely interdisciplinary. Interestingly, among the environmental science team, an immensely strong air pollution, atmospheric chemistry team, led by Professor Roy Harrison, and interesting overlaps because they also did work on incineration and dioxins. So the background was still there, although I wasn't teaching waste management, but still doing contract research work for Government Departments particularly on public engagement, for DoE that then became DETR, and then became Defra.

I had nearly ten years of funding from the EA for different pieces of work on public engagement and communication from 1996. So very much working with Government Departments, worked on the development of the land contamination, a new system of regulation and still working with some of the Pat Delbridge team, Amanda Jane Grey in particular, on running public engagement exercises. I was moving now in other areas, so we ran for example one project, the SMURF project, which was Sustainable Management of Urban Rivers and Floodplains, a European Life project. The distinctive characteristic of those was that you actually deliver a project, which in this case was an urban river restoration in Birmingham. We were working again with the EA engineers, with consultants, but myself and colleagues ran the public engagement exercise around what people wanted in their urban rivers, how they perceived them, how they thought they should be restored and managed etc. Also because of the risk perception, risk understanding, I got engaged in some projects for the Department of Health to look at perception and communication of risk

around environmental health issues, air pollution being one, radon being a second. We also looked at mobile phones and risks to health. I did some work for the Department at the height of the MMR (measles-mumps-rubella) vaccination issue with children. Again using the skills of running public engagement exercises, I worked with regional child immunisation specialists to run discussion workshops with a range of mothers, different ages, different experience with young children, different socio-economic backgrounds, to try and understand what it was about the story, which was being run in the media, that they were concerned about, that they didn't understand, that they needed information on, etc. And we developed advice for the Department on how to develop the guidance and the leaflets etc. that were being used by GPs practices in particular. The story was picked up particularly in the media as a result of a piece of science research reported in *The Lancet* journal by Andrew Wakefield. And it was a very small study, as I remember it, 12 children that he looked at, who were considered to possibly have signs of autism. *The Lancet* was absolutely correct in the way it talked about the size of the sample etc., it was picked up particularly in the media when the author was unable to say that there was no link between the vaccination and autism. Autism begins to be seen in children at a very similar age, 18 months etc., just when you're giving the vaccination. So there was this correlation of seeing evidence of autism when children were also just having the vaccination for the first time. And the *Daily Mail* in particular, picked this up, and it became very frightening for parents who were having to take a decision as to whether to take their child to be vaccinated.

LF: How did you then take that learning and develop it? How did that inform the next stage of your career?

JP: I've gone on to look at public engagement around innovative technologies, to be involved in large deliberative exercises on energy, on nanotechnologies, on synthetic biology, none of these areas I'm an expert in, but I know how to work with people who are experts, bring them to a public discussion about the science and learning, know how to tease out what lies behind people's concerns, and where they get their information from. I've also been involved for over ten years in the Government's Sciencewise programme, now funded by Department for Business, Industries and Skills, which has really seen the growth and encouragement of deliberate processes around science and around controversial facilities. I currently chair the Steering Group of Sciencewise and

I've been involved in it since day one, seeing how government can use these other mechanisms of engaging, not merely to get the message across for government or for science, but to understand why people are worried about things.

LF: When did you move to Southampton?

JP: In 2010. I was at Birmingham for 12 years, I became Pro-Vice-Chancellor for Research and Enterprise at Birmingham. But the lure of moving back to the south was very strong. We'd been in the Midlands for 30 years, but we'd started our married life, in Hampshire and Dorset. I came as an inaugural Dean of one of the new Faculties of the University, Social and Human Sciences, interestingly it also has mathematics in it so we've now changed the title to the Faculty of Social, Human and Mathematical Sciences. And my role was as the new Dean to set up the new Faculty, a very large Faculty. The research starts to plummet when you take on university administrative roles, but I've still very much been involved in Government work. From 2000 to 2006 I was a Member of NERC, interestingly as a social scientist; from 2005 to 2011, I was a Member of the Royal Commission on Environmental Pollution. We did work on novel materials, particular nanotechnologies, on the urban environment and demographic change, hugely, immensely enjoyable, very valuable work. The Commission was closed by the Government in 2011 when a number of quangos went, and after that I became a Member of Defra's Science Advisory Council. All the way through I've continued with Government advisory work. In 2012 I was honoured with a CBE for 'services to scientific research,' which was wonderful, and reflects the type of research and engagement that I've had. Having been Dean, I then became Pro-Vice-Chancellor for Research and Enterprise here at Southampton, and indeed I'm about to become Vice-Chancellor of Plymouth University in about eight weeks' time [laughs].

LF: What's the attraction of going to Plymouth?

JP: It's a final challenge. I've been at two hugely research intensive institutions. What I will miss at Southampton is the world leading scientists that I work with. I've been hugely embedded in that research world. But to go to a different type of university, with huge strengths, interestingly in my own areas, environmental science and marine science. I don't do so much research now, but still have a life in advisory work and that won't stop. I'm on the Biotechnology and Biological Sciences Research Council at the moment; I also still do work for the NERC Innovation Board, so still connected strongly to the research councils.

LF: Judith, you're going to tell me a bit about the advisory roles that you've held.

JP: Yes, two roles. As a specialist advisor first to the House of Commons enquiry into sustainable waste management in 1998. And then secondly in 1999 for the House of Lords, which was a European committee enquiry into the incineration directive. The interesting thing about the House of Commons report, which was one of the first waste management reports that the Commons Committee had done, was the discussion between landfill and other options. The role of the specialist advisor is to help the Committee ask questions of those who are giving evidence to it, provide background information, put them in touch with other people and also help to provide sources of background information. The House of Commons tends to have a more political view on a Committee than you would see in the House of Lords.

The House of Lords enquiry was on the incineration Directive, which required significant upgrade and change to incinerators across Europe in terms of emission control in particular. That enquiry was more technical, because the Committee was very keen to look at where the numbers came from for the new guideline values for various pollutants? In particular the new guideline values for dioxin; and also for nitrogen dioxide. So it was a different enquiry to the broader question about how should we manage waste in the Commons enquiry. The role of a specialist advisor, because there's often only one, is interesting, but it again brings you into that role of trying to understand what the questioner is interested in, whether it's an MP or a Member of the Lords, and how best to help them get the information they need to come to an enquiry, a decision and a report.

And, of course, you're helped considerably by the secretarial and office teams that sit behind the Committees and do a huge amount of the writing and drafting of the report.

The other advisory role, absolutely different, was in 1999 under Onyx Waste Management. The Company decided to set up an Advisory Board to bring a set of specialists, legal, industrial, academic, political, around the table to help them as a company. I was on that board to 2013 and the company changed from being called Onyx to Veolia. We visited sites owned by the company across Europe. I went to Norway, I went to France, to look at landfill, to look at the incineration plant etc. they operated elsewhere, as well as looking at facilities around the UK. But very interesting working inside a company on an Advisory Board, a sort of luxury position, because you have no non-executive responsibilities only being advisors, helping them in strategy development in particular.

LF: So looking back at your career overall, very rich, very fruitful career, anything you'd have done differently?

JP: Probably would have done some science at school, because I've spent my life working with scientists and always having to learn from scratch. The advantage is I don't have to explain the science to people, but I have to understand the implications of the science

LF: Let me just ask you about the best and the worst times overall. Start with the worst and then we can move onto the positive.

JP: I can remember times of sitting up at one o'clock in the morning trying to finish a report for a Government department, completely worn out and against some timetable of when they needed the report, not feeling it was going as well as I wanted it to. Really working immensely long hours, they are down times without a doubt. But, as you grow in a career, particularly to take on more senior management roles, the more difficult times tend to be the people issues as opposed to the science issues. The best times are when you know that you're working on something, and you've got absolute engagement with your audience and you get amazing feedback. Whether it's students in a class, whether it's an individual student who you're working as a PhD supervisor with, or it's a conference of people or it's a Government committee. Whatever it is, that sense of being valuable in whatever is going on, is the best time.

LF: What have you enjoyed most about being Pro-Vice-Chancellor at Southampton?

JP: Working with absolutely brilliant scientists where my role is to facilitate them getting funding, getting the resources they need, getting the equipment, that sort of major challenge that they face, and just helping things come together for them. It almost goes back to very early days of being a student at Exeter and working with brilliant professors, who were my tutors etc. As a Pro-Vice-Chancellor, it's often said that you have no resource, but you have to negotiate and facilitate and be an advocate for your university and for your sciences. It's very easy to do that. It's very easy, you know, in all universities to be an advocate for what you're doing, and it's very easy when you see world-class people and also rapidly rising youngsters who are going to be truly successful.

LF: Thank you very much Judith.

Figure 10: Mr Jeff Cooper and Dame Joan Ruddock

Dame Joan Ruddock DBE BSc ARCS (b. 1943) was a Member of Parliament (MP) for Lewisham Deptford from 1987 to 2015. She brought forward a Private Members' Bill on fly-tipping that became the Control of Pollution Act 1989 and, in 2003, a Private Members' Bill that became the Household Waste Recycling Act 2003. In 2007 she became Parliamentary Under Secretary in Defra and requested the waste brief, serving as Minister for Biodiversity, Climate Change and Waste until she joined the newly created Department for Energy and Climate Change in October 2008. Dame Joan gave her final speech to the House of Commons on 26 March 2015.

Mr Jeff Cooper MSc (b. 1949) became Waste Recycling Coordinator at the GLC in 1982. He was subsequently appointed Waste Planner for the LWRA where he also represented the ISWA Recycling Working Group as its Vice-Chair. He joined the newly formed EA in 1996 on a project for the development of regulations for packaging waste. He was elected Junior Vice President of the CIWM in 2004, and served as President from 2007 to 2008. From 2009 he worked as an independent consultant and journalist.

10 Ruddock, Joan & Cooper, Jeff*

Lynda Finn: When did you first get involved in politics Joan?

Joan Ruddock: I first got interested in politics when I was at school. At the time there was a lot of controversy, not just in the UK but in the States, about relations between black and white people. We didn't have any race relations laws and I began to see a lack of justice in this and my parents explained when I was quite young that black people and white people couldn't really marry because it was not fair on the children because they would be discriminated against. And I just couldn't figure out why they should be. It just seemed to me to be extraordinary. And that was one of my early political thoughts. Another one arose from my father's influence because he was a factory supervisor and when our neighbours, who were factory operatives, went on strike then people wouldn't talk to my mother and so it was all a bit difficult and I thought, 'Well, why is that? Why are the men striking? They must have a reason for the striking?' My father said, 'Oh, it's all reds under the beds', and I couldn't quite figure this out, because they were my friend's fathers and they were perfectly normal men as far I knew. These are the kind of things I grew up questioning, and that is what one understands actually as being political thought.

Probably the most significant thing that happened, I had a boyfriend who later became my husband who was very, very political, which was clearly an influence, but the person who made the biggest impact on me was when I went to a conference when I was in the Lower Sixth of my school, a conference called 'Black and White' and the speaker was the General Secretary of the Fabian Society, Shirley Williams. She wasn't an MP but she was a staunch feminist and socialist in those days, and I'd never heard a feminist or a socialist speak, and I was mightily impressed. I thought, 'That's the sort of person whose philosophy and whose understanding of life, I could follow, I could believe in. I like that.' When I got to university I joined the Labour Club and I became politically active.

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* Edited passages from the interview conducted by Ms Lynda Finn, with additional questions by Mr Alan Yabsley, for the History of Modern Biomedicine Research Group, 7 June 2016, in the School of History, Queen Mary University of London. For more details, see 'Related resources' at the end of this volume.

I was at Imperial College, London, about 160 girls and about 4,000 men. This was a very, very unusual environment because I'd been to an all-girls school. I then had to assert myself so I became the Chair of the International Relations Club and became very interested in foreign affairs, and I was interested in the environment because I was a botanist. All my political ideas came together, I became a campaigner for causes, but I never wanted to become a professional politician for the simple reason that I thought it was a filthy game.

LF: You studied science at University, was that going to be your career?

JR: After I left university I was a scientist and I did research in genetics for a while, but I decided to abandon science, and went to work for Shelter. That led me into all sorts of campaigns and different jobs, all in the voluntary sector. The turning point of my life was an accident of history and geography. I went to live near the Greenham Common base in Berkshire and the Americans decided to site cruise missiles. I got involved in the anti-cruise missile campaign and then became the Chairperson of the Campaign for Nuclear Disarmament (CND). That put me into a national arena where I obviously had to be very political, and then I stood as the Parliamentary candidate for the Newbury constituency literally because absolutely nobody else was prepared to do it. Having done it, I then wanted to do it again and that was strange because I had previously decided it was just a filthy game, although friends had tried to persuade me I should stand for Parliament. I didn't like the party politics at a professional level, didn't think it was for me, but I did think that all the problems I dealt with at the Citizens Advice Bureau (CAB) which repeated themselves again and again, were things that would be better addressed if one tried to solve those problems by legislation, by being in public life in Parliament. And so eventually all these things came together and I got lots of requests to stand because people knew of me because of my chairing of CND.

At the end of my stint as the Chair of CND I wanted to get back to party politics. I then contested a seat in my home location which was Pontypool in South Wales and I was the runner up. I thought, 'That's it, they don't want me, I'm not going to do this.' And then I got a note from Harriet Harman, who I didn't know except by reputation, who said, 'Deptford is wide open, Joan. Go for it.' At that time I'd moved out of London, I didn't know Deptford, I didn't know south east London at all. But I thought, 'Well, if somebody like Harriet is saying you should go for it, then you ought to go for it.' After eight

months of a very bitter contest and near suspension of the constituency by the National Executive Party, I was finally selected as the candidate for Lewisham and Deptford in 1987.

The sitting MP for Lewisham and Deptford when the contest began was someone called John Silkin, who had been a member of the Cabinet in Labour Governments. He was an old style patrician. He had a grand house in Kent and a flat in the area of the division bell in Westminster and he had acquired a party that had become pretty much dominated by the hard left and they decided to get rid of him. I think they were partly responsible for the fact that he died prematurely because he had two years of turmoil with the party. Eventually he said, 'Okay, that's it, I'm not putting up with this.' And he accepted a place in the Lords which he never got to because he died. They were looking for somebody much more radical than John and some more reasonable people in the Constituency Labour Party (CLP) thought, 'We want a reasonable person, somebody who is going to be a good MP.' So they coalesced around me and the other people made the mistake in the end of splitting their own vote with two candidates, both of whom I think would have had great difficulties managing being an MP as it happens. But anyway, I came through and got the seat.

LF: Would you like to elaborate a little more on that episode?

JR: One of the things that had happened in the selection was the party had put in place what was then an illegal black section and that led to the near-suspension of the CLP. And at that point a member of the National Executive Committee (NEC) of the party came to me and said, 'Joan, we are going to suspend Deptford again,' because they had been previously suspended for two years. And they said, 'But don't worry, we'll impose you.' And I said, 'No, I won't be imposed. Either I win in a contest or that's it. If you seek to impose a candidate, it's not me.' So they backed off. But that had meant that towards the end of the selection there was a particularly bitter struggle and the two candidates that I beat were both black. This was a very, very tricky situation. And the actual selection contest was very uncomfortable, it went on for many, many hours. At the end of it when I was then selected and being congratulated by all my supporters, the Secretary came up to me and she said, 'Joan, you will never stand here again.' So there was a bit of me which was thrilled, absolutely thrilled, and at the same time I knew the Secretary of the party with which I was going to be working day in day out had said, essentially, her strategy would be to get rid of me before the next election. So it was a very mixed feeling that night but nonetheless I still went to celebrate with my friends.

LF: You were elected in 1987, but were in Opposition?

JR: For a lot of Members of Parliament going into a situation where you are a Member of the Opposition is not so difficult when you enter because of course you've been in opposition all during the campaign. Everything you've been saying has been in opposition to the sitting Government. What you're used to saying and doing and thinking is no different inside Parliament from outside Parliament. There's a disappointment if you were expecting the party to win but in 1987 we didn't expect to win. So I knew what I was going to be facing. The big surprises were 41 women only, in over 600 Members of Parliament. I had come from a place, though similar at Imperial, where I had been respected and treated equally as a scientist. Immediately I was in the Commons I knew I had a problem being a woman. There was overt sexism, people were patronising, it was a really very difficult environment. There was a lot of intimidation and it was a time when the Whips of both parties were absolutely dominant, and so it was like children joining a school class for the first time and the rest of the pupils were well-established. A lot of pressure.

The second thing which was really quite extraordinary, fortunately because of the Citizens' Advice Bureau I was equipped to deal with it, but pressure from the constituency was enormous. It was partly because I had a very high profile but when I arrived there was a sackful, literally a sack, of mail waiting for me, people wanting me to deal with their problems. My surgeries were absolutely overwhelmed. The fact that you had to take on all that, people demanding of you, at the same time you had to be performing, you had to be speaking, you had to be asking questions. Everything was unfamiliar. Getting lost used to happen a lot. I asked for a map. I went to the library and said, 'Can I have a map, please?' They said, 'Madam, security!' [Laughter]. It was a place where people really tried to put you down, and I spoke out about it quite a few times, but the men just told me, 'Stop whingeing.'

LF: What kind of experiences did you endure?

JR: When I first arrived, this is not a bad experience, but one of the Tory grandees swept across the lobby as I entered and went down on his knees and took my hand and kissed it. Which is a kind of bizarre experience [laughs], as you arrive as a fully-fledged politician representing your constituency, part of a democracy. He thought it was a bit of fun and I squirmed and I just thought, this is not appropriate. But that's trivial. The worst thing was I was speaking in a debate on the armed forces and they were strip searching women in Northern Ireland

at the time. I was speaking out about the practice and one of the Tory MPs said across the chamber, 'Oh, I'd like to strip search you any day.' And the Speaker didn't turn a hair, nobody was concerned about such a remark. Today of course anybody making a remark anywhere near that would be immediately ordered from the Commons. That is how it was and there are some things that didn't happen to me but did happen to women colleagues at the time. Something that did happen as late as must have been in 2010, when Stella Creasy, who looks very, very young and is very blonde and slight, went to a 'Members Only' lift in the Commons to get into it, to be told by a middle-aged Tory MP, a man of course, 'Excuse me, this lift is only for Members.' Of course, she said, 'I am a Member.' But the assumption was she was a secretary.

LF: You mentioned the burden of constituency work.

JR: The caseload for a new MP is incredibly varied. One of the interesting things it always contains is a lot of letters from prisoners, all of whom protest their innocence. And I had my fair share of those because I think there was a pretty high proportion of people who ended up in jail, rightly or wrongly from my constituency. I had to write back what were pretty standard letters at the time to prisoners saying, 'Well, you've been through the justice system and is there new evidence and do you need a solicitor?' and all of those things. There were many, many run of the mill issues which were all about housing and social security, immigration of course in my constituency, all of these were with me for 28 years. But there was one that was extraordinary, it came from a council housing estate called the Silwood Estate and the people there were suffering the most incredible fly-tipping.

What was happening was lorries would come rushing down the street, they would be full of rubble and they'd be shedding rubble and rubbish and dust and if anybody got anywhere near the lorries they'd be run over because they were absolutely horrendous. They would turn the corner, dump their load and then drive off at great speed. Some of the residents had been protesting that they couldn't get anywhere. They'd been onto the Council, the Council said they couldn't do anything. Of course, as a naïve, new MP, I said, 'I'll deal with it' without the slightest idea of how I'd deal with it, I had a meeting with Jeff's [Cooper] organization, the LWRA. I had a meeting with the CEO of the Council and with the CEO of the LWRA as well. And they both said, 'We haven't got powers, we're limited in what we can do, and the truth is, Joan, don't get involved. These people go around with sawn-off shotguns. Just don't do it.' I said, 'Well, I can't not do it because people think their MP must be able to deal

with this.' The tenants of the Silwood Housing Estate came to show me what was happening at the perimeter of their estate. I'd been there canvassing and I'd seen that there was a lot of rubble and desolation around the perimeter but I was too busy knocking on doors to think about it. And once I went to look at the site, 10,000 tonnes of rubble from construction works to build Docklands, had been dumped on that site. They were being dumped by men who came in lorries at any time of night or day. The lorries would cascade rubbish and gravel and soil and spoil off the back of the lorries all around the roads. They would just rush past houses, dust everywhere, turn the corner, dump their load and back again. Nothing that residents could do. If they challenged them they were roundly abused and frankly their lives were in danger. They could have been run down at any time. It was a terrible problem and I said, 'Somehow I'm going to solve this.'

The cost of taking the waste away legally was considerable and it needed to be taken outside London, and so they had this racket. Ultimately I said to the Silwood tenants, 'The only thing that will work is a change in the law, and if I win a place in the Private Members' Bill Ballot I will try to change the law'. The odds against anybody winning a place in the Private Members' Ballot and then getting a Bill through are considerable. It was a pretty foolish promise.

LF: But it was a promise you actually were able to keep, wasn't it? Could you say something more about that situation that preceded your Private Members' Bill?

JR: Well, we might ask Jeff here. A law was broken because clearly this amounted to a public nuisance if nothing else. It was an environmental hazard because a lot of the materials contained all kinds of pollutants and you could have contaminated earth and concrete and glass being dug up in these areas and loaded onto lorries and being dumped. But it was the penalties, the power to actually get hold of these people that was the main issue. They came, they went, sometimes they would have such thick dust you couldn't even see what the registration number was. There was no mechanism for controlling the carriage of industrial and construction waste and there was no means of being able to stop or seize the lorries. Even though the people on the estate regularly, where they could, recorded the registration numbers of the vehicles so there was a record and you could see a pattern, there still wasn't a means to do anything sufficiently substantial to end the practice. And it was in many poor boroughs in London, it wasn't just Lewisham.

Jeff Cooper: The situation prior to Joan's Private Members' Bill becoming an Act was very difficult. You could prosecute somebody but you would have to literally catch them in the act. And the real difficulty was that there was no means of checking on anybody because there was no mechanism for ensuring that people were registered to carry waste.

JR: That's right. They didn't have to be registered. They could simply say 'It wasn't me.' And Jeff's point about you had to catch them, you'd have had to have people in authority standing there 24/7.

JC: So you actually needed the police to be doing something but at that time it wasn't a priority as far as the police were concerned.

JR: By the time I started to get active in the Commons on the issue, I did discuss it with them but initially I didn't realise it was anything but a very local problem. It was people working for Lewisham Council in environmental health who told me that they had colleagues in Southwark and they told me that the wife of an officer in Southwark, he'd been very active trying to do something, she had had somebody come to her front door with a sawn-off shotgun and threatened her that her husband needed to stop poking his nose in.

LF: Can you describe the process for getting a Private Members' Bill, Joan?

JR: The Ballot for Private Members' Bills always used to come in November following the Queen's Speech, and before the fixed-term Parliaments that was the sort of rhythm of the Parliamentary cycle. Then you would be invited to go along as a Back Bencher, and the Clerks have a book and it's all ruled and there's a number, obviously numbered sequentially to about 400 I think. And you write your name against a number and then they do a ballot. I imagine it's all done by computers now, but in the early days, I suppose, they might have put numbers into a hat, I don't know. Anyway, by some mechanism of balloting they choose I think up to 20 people from the hundreds that put in, but only the first six are guaranteed Parliamentary time. The others can have a go but they will not get anywhere. But the first six are guaranteed Parliamentary time to try to bring a Bill through Parliament. In 1988 I came out as number five. I'd only been an MP for a year-and-a-half. I don't know if I even put in the very first time because it might have been so new I didn't get round to it or didn't know about it.

To win after such a short time and to get within the first six was pretty much a miracle. But having got it, there wasn't the slightest doubt what I had to do because as soon as you've got a place, as soon as it's announced, people contact your office immediately and impress upon your staff that you've got to take up this issue or that issue or whatever it is. I was able to say to my researcher, 'This is the standard letter you're going to send to everybody,' because it was mostly letters in those days, 'which is going to say that I've made a commitment to my constituents and that's what I'm intending to do. So thank you very much for your interest but I won't be taking up your ideas.' I was absolutely elated for a few minutes, then I realised, 'My goodness I don't know anything about how to bring forward a Private Members' Bill.' So I went to the Whips who are supposed to be the font of all knowledge and protectors of Members of Parliament. And the Whips just took one look at me and dismissed me and said, 'Well, that's your problem. We have nothing to do with Private Members' Bills.' Today it's very, very different. The Whips realise it's in the interest of their party and reputation and everything that Private Members' Bills put up by their own Members should be supported, but not then. Fortunately I could turn to Joan Walley, who was a good friend of mine, and she had been on Lambeth Council and I think she must have been on the Environment Committee. She was very hot on the environment and so she knew about the Institute of Environmental Health. She recommended me to go to them. They said they were absolutely delighted but said, 'We think your best bet is to go to the LWRA.'

In the meantime I had to find out what are the steps that you do in Parliament. I didn't know what I had to do to bring forward a Private Members' Bill and I was given one useful piece of information which was that I would be able to meet with a Clerk of the House, who was responsible for overseeing Private Members' Bills. So I went to see him. He explained I would have three weeks in which to decide what I wanted to put in my Bill, but I didn't have to write up the whole Bill within the three weeks, what I had to do was establish the most important thing, 'the long title'. Now the long title was a mystery. I knew that I wanted a Bill to outlaw fly-tipping but he explained that we could put a short title in, which would be about the carriers of waste, but we would have to have a much longer title if I wanted to do the things that I explained to him I wanted to do i.e. seize lorries and haul people into court and stop them and all that sort of thing. What we eventually agreed was that there were these two aspects of the Bill. One was to provide a licensing system for the carriers of waste, and the Clerk would contact the civil servants in the relevant Ministry and he would have known that they were going to be sympathetic to bringing

in some certification system. But he would also have known that they were wholly unsympathetic to everything else I wanted to do. But it was his chance, as a proper civil servant, a proper professional, to devise a long and Delphic sentence that covered everything that I might conceivably want to do. It was not only to provide for registration but it was to provide for other measures that might be appropriate in dealing with those who carried waste illegally. So we got the long title settled and that was the beginning of the process.

LF: And you also went to the LWRA for advice. Jeff, do you want to comment?

JC: Actually I first met Joan in the goods section of a train that was going from Preston to Blackpool North at the start of the Labour Party conference. Why were we in a goods section? There were so many people on the train that we'd run out of space. So I got chatting to Joan because I was, at that time, the Chair of the Socialist Environment and Resources Association and I knew that Joan was very interested in environmental issues generally. So we got to know each other quite well from that. Subsequently Joan was very useful to us when she became an MP because she sponsored a number of meetings in the House of Commons and in fact on the day of the Ballot, Joan said to me, 'If I'm successful in the Ballot for Private Members' Bills I'm going to do something about fly-tipping and I hope that you're going to help.' And then by the end of that meeting we knew that she'd come fifth in the Ballot and she said, 'Well, we've got to do something.' So I said, 'Well, I'll see what I can do in terms of getting some support from the LWRA.' And that was really the start of our connection with regard to supporting this particular Private Members' Bill.

In 1988 my role within the LWRA was a very odd one in that I was there as the Waste Recycling Officer but I also had responsibility for promotion and publicity on behalf of the LWRA. I had quite a free hand with regard to my activities. I was allowed to do a lot of things which frankly were beyond the remit of my job, which was quite fortunate. So I was Chair of the Socialist Environment and Resources Association, which is why we had a meeting at the House of Commons on the day that the Private Members' Ballot was announced. It did mean that I took on some degree of responsibility on behalf of the LWRA to provide support to Joan and I was very pleased to do so. It was a new experience for all of us inside the LWRA to do something like this, to get very actively involved in trying to sort out some of the problems that we faced. It wasn't just Joan's constituents but problems that we faced throughout London and nationally as well. That was one of the difficulties that I faced. I had to make the case for supporting a Private Members' Bill on behalf of the

LWRA, which was actually quite a difficult thing to do because at that time the LWRA was Conservative controlled. My political boss, Councillor Joan Wykes, who was a Member for Bromley and not well-disposed towards Joan Ruddock. So I was squeezed between these two 'Joans'.

JR: Yes. But she became a great supporter.

JC: She was a great supporter, but it took an awful lot of discussion over an extended telephone call to persuade her that…

JR: I wasn't the devil incarnate. [Laughs].

JC: Absolutely. I mean this was a problem politically as well as personally. Joan Wykes was not initially enamoured in terms of support for this Private Members' Bill. But nevertheless she did become a great supporter and it meant therefore there were some resources that became available in the LWRA in order to support this Private Members' Bill including, and this was also fortunate, one of our legal advisors. We had a number of legal advisors but this one was from New Zealand and she was very, very good because she was determined to learn as much as she could with regard to this particular aspect of legislation. She did a heck of a lot of background work and was very helpful in terms of liaising with our external advisors in order to produce what in retrospect was quite a complex Bill. Private Members' Bills tend to be quite short but this one, because Joan had these ambitions with regard to registration of carriers, seizure of vehicles and so on, she really wanted a fairly comprehensive framework to stop these people in their tracks. And in the context of developing the draft legislation certainly the civil servants at the DoE were very supportive.

JR: Absolutely.

JC: But we did have difficulty with regard to the Home Office because the seizure of vehicles provision was one that they were very unhappy about, and also the extra controls that Joan wanted inserted with regard to demolition and construction waste as well. They were unhappy about why it was that we had these extra controls over that particular type of waste and why we needed to actually seize the vehicles. It took a lot of negotiating but eventually even the Home Office conceded that without those provisions the Bill wouldn't have the kind of teeth that was required to do…

JR: You make it sound quite simple, Jeff [laughs] whereas you know it absolutely wasn't! We got a place in the Ballot on 1st December and I think it was 24th February the following year that we got our second reading. That's the first time

that you actually have a debate on a Bill in the Commons. At that point it's very important to consider the politics of this, as you mentioned earlier about Joan Wykes. We had Virginia Bottomley as the Environment Minister, we had Nicholas Ridley who was the Secretary of State, and who was an incredibly difficult man. At the second reading, Virginia, who I got on with well, made a very interesting comment that day: she was there as a female Minister, I was there as the presenter of the Bill, Joan Walley was the Shadow Environment Minister, and in the Chair was the Deputy Speaker Betty Boothroyd. Virginia, who was a bit of a quiet feminist, pointed out that this was probably unprecedented, that all the leading figures on that day in the chamber were women. Anyway Virginia was very nice about the first part of the Bill, which of course her civil servants at the DoE were very glad to have, to register carriers of waste. She said they were very supportive of that but they could not accept Part Two of the Bill. Part Two of the Bill was where we had all the really radical and important measures that would make it work and they were all under the control of the Home Office. The Home Office didn't want it and she said, speaking for the Government as a lead Minister, that they couldn't accept it. So although the second reading was agreed and we knew therefore that we were getting to committee stage, it was obvious that in committee they would try to emasculate the Bill. Even on a Private Members' Bill you're going to have the Government controlling things and so I knew that what they wanted to do at that point was actually just get rid of Part Two. They just wanted to have the bit they liked. And one night I was in the lobby, and Nicholas Ridley came up to me at the back of the chamber and sort of pointed his finger between my eyes and said, 'We could blow you out of the water.' How threatening is this? I'm a completely new female MP, this is one of the Secretaries of State and here he is pointing his finger at me and being very threatening.

Anyway, it was suggested to me, because obviously we'd met with the civil servants and they said to me, 'Your Bill will go through, it's guaranteed, if you drop Part Two.' And I said, 'No.' Because I knew to have, as we had in Part One, a scheme which would mean that you had to register as a carrier of waste, you had to have a certificate to show you were registered. Well, what was going to happen there? Because these bully boys, these criminals, they would choose not to register and they'd still go on and you'd still be trying to stop them and get them into court for a failure to have themselves registered, a much lesser offence than actually dumping of waste. It was a nonsense. You had to have more so we persevered.

Jeff, you knew very well, your organization knew very well, the fact we had your Chairwoman, Joan Wykes, the fact that I had as a sponsor and supporter, Sir Hugh Rossi, who was a Chair of the Select Committee, and Sir George Young as well, significant Tories supported us, not because they wanted to support me but because they knew that this was a scourge that had to be dealt with and why should they be on the side of criminals? I think that was a key thing wasn't it? These were criminals. So the fact that we were talking about something that was anathema to Tories, which was more police powers to seize property, which is what we wanted, that was quite secondary to the fact that they knew you particularly, your staff, were dealing with hardened criminals. But it was the fact that these illegal operations were being undertaken on a huge scale by hardened criminals, I think that did make an impression and in the end they came onto our side.

JC: They did, yes.

JR: The role of the LWRA was very important. I couldn't have done this without the sort of technical backup that I got.

JC: We were very happy to provide it because we knew that once we had those powers, or once we had staff in place, then we could actually clamp down on fly-tipping and so it did prove to be the case. Immediately after the Act came into force, we recruited an ex-police inspector, James Smith, who actually did a lot of the work and liaised very closely with colleagues in the Metropolitan Police to seize a number of vehicles and impound them. That was actually very encouraging as far as colleagues were concerned in other parts of the country.

JR: When we got that Bill, I think it was about July?

JC: Yes, it was July.

JR: It had taken us a good seven months of terrifically hard work and when we got that Bill we really felt, 'This is going to be a breakthrough' because if you could just nail those people, if you could just get them into court. They were never going to be fined as much as we wanted, but the fact you could get their vehicles off them, stop them in their tracks; that was really something. In my constituency, the Silwood tenants were absolutely over the moon.

LF: Can we just go back to the passage of the Bill?

JR: Jeff we need to sort of recap on this because I remember very distinctly the fact that I was being told by DoE civil servants, 'Look, get this Bill through, we want this Bill. Drop Part Two,' etc. But my recollection is that we did some sort of technical adjustments and I brought forward some amendments which made it slightly more acceptable. And I've got the feeling it was to do with getting the warrant.

JC: I think it was. I think that in the committee stage there were some changes that were made so that you had to have a police officer and an actual arrest. So it was not just powers for the EA but there had to be also a police officer doing the work.

JR: I think that's my recollection, that when I dug my heels in and said, 'No, I'm not going to drop Part Two. If I lose the Bill, I lose the Bill,' which of course I was thinking I couldn't lose the Bill but I had to be brave, as it were. [Laughs]. And once we got to that point then I suppose realistically I thought, 'Well, maybe we could do something that makes it more acceptable to them'; this being such a serious thing to do, to seize property, that they had to have some sort of cover for it. I think that we originally, if I'm right, we wanted local authority or LWRA officers to have the powers and we were told that the only way they would concede to support Part Two was by having a police officer present.

JC: That's right, it was.

JR: We conceded ground because we knew that you could bring about cooperation with the police because they would want some exemplars. So you might not get as many people but you'd certainly get some of the big guys, get them into court.

JC: That was it, yes. And that's effectively what did happen subsequently because on all the cases that we pursued, and all the arrests that were made, there was joint action between the LWRA and the Metropolitan Police.

JR: It was probably safer for your officers. [Laughs].

JC: Indeed. I mean we were actually quite relieved.

JR: You were probably glad in the end.

JC: Because although at that time of course the police did not necessarily go armed onto these sites, there was at least the reassurance that armed backup could be made available.

JR: That's right, that's right.

JC: Once we had the Control of Pollution Amendment Act, 1989, in force it was actually a lot easier for our staff to do some thorough work in pursuing fly-tippers. The kind of thing that used to happen was that we'd have a joint agency project involving the police and quite often we would have a number of other activities being looked at very closely when we went to these premises. So we would be very proactive in actually pursuing these people in their own premises where they stored the vehicles. So we weren't just stopping them on the highways, we were going along and taking vehicles from those premises. And you had things like red diesel being used, so that was again an offence.

JR: Oh yes, that's right, I remember.

JC: And you did end up with a whole list of charges and you could take them through to the courts and if you weren't successful on one charge, you were certainly going to be successful on two or three of the other charges. So it was this multi-agency aspect that we focused on increasingly as we were doing work against the most criminal fly-tippers.

JR: And some of them ended up with quite substantial fines because, as you say, they were £5,000 and another £5,000 and so it mounted up when you had all these multiple charges against them. That's right.

JC: And some prison terms as well. Sometimes initially they were suspended but it did mean that they had the threat of imprisonment hanging over them.

JR: We did a good job.

JC: I think we did a very good job.

LF: But then there was the second Private Members' Bill wasn't there, on landfill?

JR: Yes, amazingly in 2002, when of course I was never expecting to win I got a place again and I was number five again. And I thought, 'Oh gosh, this time I haven't got a ready-made idea, I haven't got a constituency issue that I've made any promises about or that's actually really top of my agenda.' But I had become, as Jeff referred to earlier I'd worked in SERA, I'd become patron or something on the Executive over a period, I'd done a lot of environmental work. And I was very, very keen, as most environmentalists were at that time, on recycling. Britain was so, so bad at recycling compared to many other European countries. And significantly there was a European directive, which was concerned with the amount of waste going to landfill because by this time people knew that

landfill was very dangerous and it was very dangerous to the environment in general. People already knew about climate change, about methane gas, about the dangers from the sites, and there were even questions at that time, I'm not sure if they were ever proven, there were issues of concern about even birth defects arising from the pollution to households living very close to landfill.

JC: And that was particularly the case in South Wales.

JR: Yes, it was, wasn't it, Jeff? It isn't an odd thing to think, is it, when you think of heavy metal pollution, gasses, children growing up in that environment potentially people growing vegetables in contaminated soil, you know, all kinds of things. So it was a great concern and there was that issue about the problems of pollution caused by landfill but the other issue, which was so important and had had very little thought given to it, was the waste of resources. We were putting into the ground, manufactures particularly, that we had taken from the ground in many cases and then we were just squandering them when they could have been recycled. The issue of plastics of was very significant because the use of plastics had grown exponentially and the persistence of plastics in the environment was now known to be a very serious matter.

I personally already had taken responsibility for my recycling because there was a group in Lewisham who ran a cooperative and they collected recycled materials from the doorstep. They gave you every week a series of plastic bags [laughs] with different colours and you put your recycling in and they came around and collected it. They managed to keep a small business going for some years on this basis. I already paid for mine, I can't remember how much it was, maybe £5 a month, to do this. I saw the great potential of people having their waste collected on their doorstep because it suited me, why wouldn't it suit everybody? Lots of people, particularly FOE, had been pressing for this sort of thing and FOE had actually drafted a Bill for doorstep recycling and it was massively ambitious. I think they had seven waste streams that they proposed for collection at the doorstep. Because of my experience of doing one Private Members' Bill I knew this time just what to do. So I said to them 'Look, I would like to do this Bill, but you have to understand this is my Bill, I will have to do the negotiations. It won't be your Bill in the way you want it, but I can pretty much promise I'll get you a Bill'. I thought 'a Labour Government is going to back me all the way.' I couldn't have been more wrong.

Getting the title was not difficult because it was very clear, we wanted household waste to be recycled at the doorstep. At that time people were taking their recycling materials to supermarkets, who had just started to provide big bins to collect various different things. But, as I pointed out in my second reading speech, as 28 per cent of people didn't own a car there were a lot of people who were not going to transport their waste from their home to the supermarket. The other argument was local authorities have a duty in law to collect waste from the nearest point to the householder's front door.

We set out to make the case, lots of support in the Commons from all sides of the House. Recycling was thought to be quite cool. Then, as inevitably arises with many Governments, there's a question of 'Who pays?' And that became the sticking point, because the Labour Government had made a promise to local government not to impose new duties on them. The deal was if central government was going to impose new duties on local authorities then they would have to compensate them financially. At that time there was a lot of environmental legislation, a lot of things happening. Authorities were complaining, 'We don't have the resources, we'll have to get new waste lorries, we'll have to get new bins' and once you got into the practicalities you could see that this was quite an issue, much bigger than my local co-op taking my bags away.

So the case had to be made. Michael Meacher was the Environment Minister and he was very enthusiastic, I thought we were getting on very well. We'd had our Second Reading and the Government had let the Bill go into Committee but had expressed the deepest reservations to me about how demanding we were being. I think I'd got it down to about five waste streams but in the end we agreed to 'at least two', again because they were so concerned that local authorities would not be able to cope. I took the view that if we said 'at least two' mostly they'd go for three because they'll do plastics, they'll definitely do bottles, and they'll definitely do paper, because we knew there were markets for paper and card, that there were markets for bottles. And the biggest complaints from the public were about plastics.

JC: That was mainly because when you look at anybody's bin, what you see is plastics. There's not much in the way of weight but the volume is just huge.

JR: So I really thought, 'They'll go for the three and that's what we'll start off with' and that's not bad, to have three streams when you had none. Then Michael Meacher, I'll never forget it, we were in the voting lobby and Michael

sidled-up to me and said, 'Joan, I'm really sorry but I've just seen the draft letter that Margaret Beckett is sending,' – Margaret Beckett was the Secretary of State for the Environment – 'around the Cabinet explaining why your Bill will be voted down.' I was absolutely floored because it had huge popular support.

JC: It did, yes.

JR: I couldn't believe it. At this stage my own Government was going to snatch this Bill away from me. Michael said, 'It's Gordon. He will not agree,' they couldn't get agreement from the Treasury and so Margaret just said, 'That's it. If the Treasury won't agree then there is no Bill and we will organise for it to be talked out, voted out, whatever.'

LF: How did you deal with that?

JR: I had organised an exhibition of recyclers to coincide with the Second Reading of my Bill and I got some absolutely amazing exhibits that came from recycled materials. Fleeces were very popular in those days, you know the things that you zip up the front and they were kind of woolly and warm and highly fashionable, and there was a company that produced these glorious deep red, very luxurious fleeces. They were all made from plastic bottles because it's just a polymer, you take it, re-spin it, you've got a fleece. But that transformation was difficult for people to imagine, it didn't seem possible.

Another thing that I thought was stunning, because I'm a gardener, was they had produced flower pots which were brown, looked and felt identical to plastic but they were actually biodegradable. And so I thought, 'These are so amazing.' I didn't know whether Gordon Brown would see me [laughs]. I was a little back bencher but I asked to see him. I went in, I put the red fleece and the plastic pot on his desk, and I said, 'Gordon, just look at those.' I mean he would not be the wearer of a red fleece, would he? [Laughs]. I don't think he was a gardener either but I explained to him how these two manufactures had come about and I said, 'Look, Gordon, there are two issues here. One is new industry, new jobs, green jobs, work for people. You know the possibilities are endless. And secondly, the EU is going to fine us hundreds of millions of pounds. Your department is going to have to find the money because we're going to be fined because we're putting too much in landfill. And the growth in waste is so great that actually you can't escape that unless you do recycling.' The next thing I knew the Government was accepting my Bill.

JC: The important thing about the Household Waste Recycling Act, 2003, was that it led to even more local authorities implementing collections of recyclable waste from the doorstep. For me the important thing was that we were actually moving very much faster along the road to where many of our European neighbours had been going. I'm thinking here of Germany where they had implemented a progressive system of collections of recyclable waste including all the packaging waste, and in particular the light materials such as plastics, aluminium and steel cans. For me actually collecting those lighter items is very important because of the issue of embedded carbon and if one looks at the wider perspective of the move away from landfill then you've actually got a good mechanism for converting more waste into useable resources. And there are of course still existing requirements for us in the UK to reduce the amount of waste that goes to landfill and recycling has an important part to play there. Although obviously there's other things that you can do with waste such as incineration with energy recovery you only want to use that in the case that you can't actually recycle material. So for me we've got a very important mechanism that you introduced to encourage all local authorities to undertake doorstep collection and quite often these days it's done using wheeled bins. The development of the wheeled bin, which was first used to collect residual waste, was very important in health and safety terms.

JR: Absolutely, yes.

JC: One of the problems that we've always had in this country is that people end up with injuries as a result of picking up black sacks that have got glass in them or sharp objects of some sort. If you look at the development of our waste collection infrastructure, the use of wheeled bins has been very important. Now we're using them to collect most recyclables. The thing that I don't like is the fact that quite often local authorities collecting glass...

JR: Yes, along with paper and plastic.

JC: Mixed-up, yes. So you end up contaminating quite a lot of the other recyclables with small pieces of glass. That is something that needs to be dealt with separately but that's just my opinion from long experience as the one-time Chair of the LARAC all the way through from 1984 to 1996 when I joined the EA.

JR: Of course quite a few local authorities collect their paper and cardboard separately to ensure they don't get glass contamination. And then you've got these big MRFs where they have to go and pick all the different things off the conveyor belt. But it's led to a huge new industry, to a lot of jobs, to a lot of things.

JC: You've got this strange aberration haven't you of the 20th century where you've got this linear economy and things are being, as you said earlier, extracted from the earth, used very briefly and then get dumped again.

JR: Dumped and buried. I have a horrible thought that many generations ahead people may be forced to go digging up in those landfills to try to get things out because they've got so rare. It could come to that. I suppose they'd probably send robots in, wouldn't they?

JC: Well, they would these days, absolutely.

JR: It was a very extraordinary thing to get a second Private Members' Bill and I was absolutely thrilled when it got through in October 2003. I never asked him though I kind of think Gordon Brown remembered that encounter, because when he became Prime Minister he offered me the job of Environment Minister, which I accepted and became the Minister for Waste.

LF: Before we go any further with that, could you say something about the health and safety aspects?

JC: One of the problems is that the waste sector generally has got a very poor health and safety record, there's a number of fatalities or serious incidents that occur each year in a range of different areas. Sometimes in the MRFs themselves, sometimes in the collections, sometimes at the household waste recycling centres. It's one of those issues where you can say there's been a general improvement in health because we've almost eliminated the house fly as an issue as far as household waste is concerned, which is great. That's led to a number of health improvements, but the waste industry has one of the worst health and safety records that unfortunately continues from year to year. It's not entirely the fault of the operators. We've had one issue that's cropped up which is a consequence of homelessness. Homeless people are sometimes inclined to go into large waste bins to spend the night there and unless people are checking then unfortunately they can get tipped into the bin.

If you look at the health and safety issues in the MRFs initially there was a lot of hand sorting and there were lots of sharps injuries and so on. But as we've mechanised the sorting arrangements it's become cleaner, more efficient and people are just doing a few checks on quality assurance at the end of the process, so it's much better.

LF: I think we'd better finish there – thank you both so much.

Figure 11: Professor Anthony Seaton

Professor Anthony Seaton CBE MD DSc FRCP FRCPE FMedSci (b. 1938) qualified from Cambridge in 1962. He trained at Liverpool in general medicine, cardiology, and neurology. After senior posts in respiratory medicine in West Virginia, USA and Cardiff, he became Director of the Institute of Occupational Medicine in Edinburgh (1978–1990). He was also Head of the Department of Environmental and Occupational Medicine at Aberdeen University from 1988 until his retirement in 2003 (now Emeritus). His research from 1969 to 1990 largely concerned asthma and occupational lung diseases, and led to the development of UK protective health standards in coalmining, asbestos work, and the silica, wool, and polyvinyl chloride (PVC) industries. Throughout his career he worked as a NHS Consultant, and taught respiratory and occupational medicine. He has written seven books and over 300 papers on respiratory and occupational medicine, and other topics, and has lectured on these subjects internationally. He was the Editor for *Thorax* from 1977 to 1981, and in 1999/2000 he was President of the BTS. He chaired the UK Government's Expert Panel on Air Quality Standards, and sat on the Committee on the Medical Effects of Air Pollutants from 1991 to 2003, and the Royal Society's Working Group on Nanoscience and Nanotechnology from 2003 to 2005.

11 Seaton, Anthony*

Tilli Tansey: Thank you very much for coming down from Edinburgh, Anthony. Why did you became a doctor, what influences made you choose medicine as a career?

Anthony Seaton: Childhood was straightforward, middle class. Born just before the War. Earliest memories are bombing, air raid sirens, running to the air raid shelter or being carried. We were in Liverpool at the time, in the Liverpool Blitz. And father suggested we went to his parents in Harrogate in Yorkshire, and I went to a little prep school. After the war, we moved back to Liverpool where father was in tropical medicine. I was given the option of staying as a boarder and I opted to stay, so I started boarding at the age of eight. After that I went to a minor public school called Rossall, on the Lancashire coast. I decided very early on, in my first school actually, that I was going to be a doctor, to the point that the teachers used to call me 'Doctor'. It was simply because my father was a doctor; it was the only job I knew. I remember mother worrying about paying the doctor's bills. At my first school, I remember the teacher said 'You're going to be a doctor, aren't you? They're going to nationalise doctors; write an essay.' And I wrote an essay in favour of nationalisation, just before the Health Service actually came into being. My desire was to become a doctor, just to become a doctor and to help people who were ill. Very early on, I got an understanding of what nationalisation and socialisation in medicine meant, and stuck to that all through my life. I've always been active on behalf of the NHS, and never did private practice. My father became a doctor because his father was a doctor; who became a doctor because his father was a doctor. And great-grandfather was what we call in Scotland 'a lad-a-pairts', someone who came from a poor family, so he broke out, went to university in Glasgow and became a doctor, and then migrated south to Leeds.

TT: You said your father was in tropical medicine. He was a physician?

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* Edited passages from the interview conducted by Professor Tilli Tansey, for the History of Modern Biomedicine Research Group, 16 August 2016, in the School of History, Queen Mary University of London. For more details, see 'Related resources' at the end of this volume.

AS: Yes. He qualified from Cambridge and Leeds, and he went into tropical medicine before the war; after the war the tropical school changed from what was essentially chemotherapy for tropical diseases to mechanisms. Father remained a Lecturer in Tropical Medicine in Liverpool all his life, got very disaffected unfortunately. He was interested in malaria, and generally in tropical diseases. He was the Lecturer on Helminthology.

TT: Did your father do clinical work?

AS: Yes, he did. There was a fair bit of tropical disease amongst ex-servicemen back from the Far East. When I qualified from Cambridge I went to Liverpool to do clinical work, and so I got to see him at work. He taught me how to do liver biopsies, and I became the liver biopsy Registrar in Liverpool in the early days. He showed me tropical diseases. It was a wonderful place, Liverpool, to do clinical medicine, because there were so many hospitals, so many sick patients, and you saw so much, it was absolutely marvellous. That was what I wanted to do, I wasn't terribly interested in the basic sciences at all. But I really loved seeing patients and understanding patients. And the teachers had, unlike in the London hospitals, relatively few students, and they gave a lot of their time to teaching.

TT: Can I just go back to your schooling? You did science A levels?

AS: My main interests were English and Latin but I was in the science stream because I wanted to be a doctor. I was introduced to science seriously at Rossall. The biology teacher was the one I remember best, the most influential. And the thing that he taught us about that really struck me, I suppose at the age of 14, was evolution. That has been a stream in my life ever since, thinking about how we've adapted to our environment. There've been two influences I look back on in school - my English teacher, who taught me Latin as well, Mr Denis Curry, who was a wonderful influence; and my biology teacher, Mr Harry Edwards in Rossall, who was a human being, not many teachers were human beings in those days, but he was. He was a really nice person, and you felt he was a sort of father figure to a lot of us. Very good teacher. That was where I got a real interest in biology.

TT: You then went to Cambridge.

AS: It was the done thing in those days. If you were at a public school they wanted you to go to Cambridge. I was too young, in retrospect, I was still a schoolboy of 17. There were a lot of ex-military people there. I didn't get terribly interested in the academic side. I was into sport a lot, and having a good time. What really lit me up academically was going to Liverpool, and seeing patients.

TT: How was it structured? Because it wasn't usual to go to Liverpool.

AS: It was unusual, but there were three of us at the time who came from Liverpool, and went to Liverpool to do the clinical. In my case it was clear, I was the first of five children, and my father was educating all his children privately. So I went to Liverpool and lived at home. And that was not easy, because I had young brothers and sisters around who got in the way when I was trying to study.

TT: Is there anything in your clinical years you particularly enjoyed? Did you have any inkling then of a specialisation?

AS: The subjects I liked best were cardiology and neurology, because you could relate very easily what you found when you examined patients to what you knew in terms of anatomy and physiology. There was the excitement of examining a patient, asking the questions, and then visualising what was going wrong inside them in almost mechanical terms, that really appealed to me. Chest medicine didn't make an impact at that time, partly because chest medicine was TB in those days, and that was separate, and we got to go to the TB hospital for a day or so, and that was it. It was the physical examination that I got interested in, and got interested in the stethoscope and Laennec. That was down to a general physician in Liverpool, John Robertson who had an obsession with the nomenclature of the sounds that you hear through the stethoscope. He'd gone back to Laennec, and read his work, and got obsessional and wrote a lot about it.

TT: The other thing that you mentioned earlier, being fascinated in school by evolution. How did it persist as an interest in Medical School?

AS: The Professor of Medicine was Lord Cohen he was a very good teacher but he didn't often come because he was very busy. I remember one lecture about the wider public health. He recommended a book by Rene Dubos, called *The Mirage of Health*. It was about the place of mankind in general evolutionary terms in the ecology of the planet, and how the ecology of the planet influenced man's health and vice versa. It was a broad ranging book, and it had a huge

influence on me: the place of humans in the wider ecology, the competition between us and microbes, seeing us as competing for our little part of the planet. And it led me in all sorts of interesting directions, as I went through my career. A year or so ago I looked for it and realised I'd lent it to somebody and it had not come back, as happens with books. I bought another copy and reread it. It was amazing, I found all these things that I'd been teaching; they were all there in this book. I realised that there's nothing original in my head at all, I'd got it all from Dubos.

TT: That's quite forward thinking, so really very early to be starting thinking about those larger issues, and ecology, evolution and mankind's place.

AS: It was. I subsequently discovered when I'd been reading about the history of TB, that he was one of the soil biologists who discovered streptomycin, the soil biologists were looking for something to kill *Mycobacterium tuberculosis* in the soil, because they knew that the soil is an ecology with competing organisms. They knew that if the TB organism was there, there would be other organisms that competed with it, which would produce something which stopped TB proliferating and becoming the dominant soil organism. They discovered *Streptomyces griseus*, which competed with TB, and became the basis of streptomycin.

TT: Were you unusual in reading this book? Did your colleagues read it?

AS: I suspect I was the only one. It was a guilty secret that I went and bought it. We were a rough rugby playing group, there were one or two intellectuals there who became quite well-known, but by and large we talked about the things medical students talked about: girls and rugby. There weren't many girls among us, a few in those days, but we were mostly boys. Medical School wasn't an intellectual powerhouse. Everyone was terribly cynical about the public health lectures, they were more or less compulsory, which people managed to dodge. I used to go because I thought they were fascinating. Fifty years later we had a reunion, and I was amazed to find out how many had ended up doing public health, particularly the women, I suppose for career reasons in those days, it was more easily adapted to having a family. But by and large we wanted to be doctors. The more extrovert wanted to be surgeons, and the more introvert wanted to be physicians. A few expressed an interest in general practice, though many did actually end up in general practice. But it wasn't an attractive career in those days. It was better for money but that was the only thing about it.

TT: When you qualified what were your ambitions in medicine? Did you have any clear ambitions or were they still unformed?

AS: Unformed. I did two house jobs, one medical and one surgical. The medical one had an interest in cardiology, partly, but it was mostly general medicine. I actually failed to get the surgical job I wanted, it went to a friend of mine, and I was told 'Why don't you do the orthopaedic job, they're looking for someone for orthopaedics?' So I did orthopaedics, gosh I loved orthopaedics, it was fun setting fractures and things like that. At the end of that I couldn't make my mind up whether I wanted to be a physician or an orthopaedic surgeon. I should say that as a medical student I got interested in everything and then forgot about it as we moved on to the next thing. I enjoyed the medicine but I have to say that orthopaedics was more fun. As housemen we did casualty as well, so we were stitching people up and setting fractures in the evenings as well as hard work during the day. I couldn't make my mind up so I applied for two jobs, an SHO job in surgery, in casualty; and an SHO in medicine in a cardiology unit. I decided that I'd leave it to fate, and fate gave me the SHO in medicine, cardiology. That came up first, and I got an offer of that job.

TT: This was still in Liverpool?

AS: Yes. I'd decided if I got the medical job I'd do the MRCP, if I did the surgical job I'd do the first part of the surgical fellowship. So I did the MRCP, and I got it first time.

TT: You got it very quickly, didn't you?

AS: Within 18 months. As an SHO I worked very hard, it was a cardiac surgical unit, but I was a physician and I was in charge of the patients post-operatively, plus the day work, the post-operative stuff was mostly night work. It was a lot of getting up and seeing seriously ill patients, and dealing with problems, measuring blood gases, all sort of things, monitoring them. I got a local SR and asked him to give me tutorials; that was the tradition in Liverpool. You got a SR to grill you and give you a viva over a patient once a week. A chap called Clive Aber did that for me. I did a postal course, writing essays, because the MRCP included some compulsory essays in the first part in those days. What was a great shock, was that they introduced a multiple choice questionnaire. We were the first people to do that in 1964. Anyway, I worked very hard, and obviously did well enough to pass. We had three parts, the first part was the multiple choice, plus the essay questions, six questions, all compulsory, I've still got it at home, but one was 'fungal diseases of the lung', about which I knew absolutely

nothing. But I invented an answer to it, just on first principles and a bit of biological understanding. Anyway, there were the essays, and then there was the clinicals, we had to trail down to London to do all these things, from Liverpool, so it was quite an expense. We were earning about £600 a year in those days. And then we had the clinicals, which we did in the Middlesex Hospital, they were easy, fairly easy. I remember one patient in the clinical, poor chap, he had obviously got high blood pressure, changes in retinas, he'd had a stroke, he was a very nice patient, and he had lots of physical signs, and I was feeling very pleased with myself, I'd found out all these signs, the effects of high blood pressure, he had a big heart and so on. And at the end I remember something I'd been taught for exam technique: when you've finished with the patient you say 'is there something I've forgotten?' and the patient said 'well they mostly take my blood pressure'. That's true. And I just assumed his blood pressure was very high, and indeed it was, but I'd completely forgotten to take the most basic step, I would've failed had it not been for that patient. It's on these things that your career hinges. So I got through that and the short cases, and then you had to go for the second part, which was simply going down for some vivas. I think there were two lots of two, and you were asked pretty well anything by any of these people. I'd been told there was one examiner who had a missing eye, from a war wound, I think. He had a patch over his eye, and the rumour was that if he took the patch off his eye and you found yourself looking into an empty socket, you'd failed. I went to this table and there were two examiners sitting there, one with a patch over his eye. He said 'Seaton, look at this X-ray.' Popped an X-ray up on the screen, and because by then I was working in a cardio-thoracic unit, I'd seen lots of chest X-rays. I looked at it, and it was a fairly straightforward coin lesion in the lung, and then I looked back at him and the patch was off. I knew then that the rumour wasn't true, because I hadn't answered a question, so I told him what it was, and I remember some other questions, and it ended up with 'jolly good'.

TT: So you got your Membership, you're on a trajectory to become a Consultant Physician. National Service, did this rear its head at all?

AS: I was exempted, that was usual in those days for medical students because they wanted you to go in the army as a doctor. But National Service was abolished halfway through my medical student career, so I never did it. Which I regret, to some extent, but I didn't do it.

TT: After your Membership, you carry on as a Medical Registrar?

AS: It wasn't as simple as that.

TT: These things rarely are.

AS: I did a year as an SHO in the Cardiac Surgical Unit. I got very interested in cardiology, and then that came to an end. As it came to an end, I'd got through to the third part of Membership, but I hadn't got Membership, and I expected to fail because about 80 per cent at least failed Membership in those days. I started applying for jobs, and I was unemployed for a couple of months, because I just had one interview after another, and I was going for Registrar jobs. I had eight interviews; my wife was working as a nurse at this time, and she supported me over this period. After eight interviews for jobs, eventually I applied for a job as an SHO in geriatrics at Hope Hospital in Salford. There were two applicants, and I failed to get it. And I thought 'What the hell's the matter with me?' The next application was for a Registrar job in Stoke-on-Trent. A Registrar job, I'd been applying for SHO jobs! And I got it. I was told there were over 100 applicants for it, and I got it because I'd got the first two parts of the Membership.

TT: This would be the late 1960s?

AS: No, it was 1964, 1965. So I got a Registrar job at Stoke. It was very good, hard work, it was general medical, one in three rota. Up all night, admitting 30 or so patients per night to two hospitals. I got a lot of practical experience there. That was a good year, and then I applied for a job back in Liverpool, there were people there who wanted me back, so I easily got back into Liverpool.

TT: This was as another Medical Registrar?

AS: That was another Medical Registrar. They'd said 'Where would you like to work?' I said 'I don't want to work in the Royal Infirmary, I've been a houseman there, a student there.' So I got a job at the Royal Infirmary! But I was able to engineer a transfer to the Southern Hospital to do neurology. In those days, a young keen Registrar would tried to get jobs in different specialties, you had to make your own career, you didn't get training at all, you had to make your training. Cardiology I'd done a bit of, neurology I wanted to do, so I got a job which taught me a lot of neurology, for a year and a bit. Then I had a bust up with my boss, who was very keen on private practice, and didn't turn up very much. I was a young socialist, and didn't approve of this, but you had no choice, and primarily it meant doing his clinics for him. I got used to doing his clinics for him, seeing these patients, dealing with them, and on one occasion my wife

was in labour, and I rang my boss said to him 'Do you mind if I go home a bit early because my wife's in labour?' And he said 'No I'm sorry, I can't come in today.' He was obviously doing his private practice. So I had to do his clinic and my wife got into trouble in labour, and there was I stuck in the clinic, it was awful. So I started writing in my letters to the GPs and to the Consultants, 'I saw your patient in the unexpected absence of Dr X,' and all my letters went out with that. I think someone took my boss on the side and said 'This is unacceptable', my boss took me on one side and said 'Seaton, you mustn't write that, you must write "I saw your patient on behalf of Dr X".' I said 'If you're not going to turn up to clinics, I'll bloody well write what I want.' He looked me in the eye and said 'Don't ever ask me for a reference.' So I thought neurology is not going to be my subject, because he was an influential person. But apart from that I enjoyed it very much. I learnt a lot of neurology, and after a year or so I applied for another Registrar job that I knew was coming up – Medical Registrar in the Cardiothoracic Surgical Unit.

TT: Where was this?

AS: Broadgreen, still in Liverpool. Managing cardiothoracic surgical patients, from a medical point of view. That's when I started getting a bit interested in the lungs. I did my MD there.

TT: You'd already published your first, single author paper in the *BMJ* in 1966. That sounds a rather unusual thing to have done?

AS: Funny that you spotted that, it was a complete one off. It was a very interesting case report. A youngish lady who had atrial fibrillation, this was just before cardioversion came in, and one way of treating it in those days was quinidine, which was fairly toxic stuff, you had to be very careful, but I gave her the standard treatment and she developed a very frightening arrhythmia, which is nowadays called *torsades de pointes*. Essentially, recurrent episodes of ventricular tachycardia/fibrillation, very frightening. She went unconscious and we resuscitated her, and I was at my wits' end. I was the Registrar, the Consultants wouldn't have known anything about this sort of thing, I'd only done a bit of cardiology. There was this new drug called 'propranolol', and as a desperate measure gave her some of that. And it just put her right again. I wrote it up, recurrent ventricular fibrillation treated with propranolol. I sent it to the *BMJ,* because that and *The Lancet* were the only journals I read, and they did

take the occasional case report in those days. It acquired some sort of notoriety at the time, I remember being asked by the drug company that made it, which was ICI, to visit their laboratories.

TT: Well it wasn't very far from you, Alderley Edge. And this was the James Black period wasn't it?

AS: That's right, and they invited me to go up there, I don't know why. They must have thought I was some tame doctor who would do drug trials for them. It would've been the first β-blocker. It was just a one-off thing, I'd not thought of it between that day and this, but it was my first publication. In those days, you had to get the Membership, publish something, do an MD, go to America, become a Consultant. That was the sort of standard rule. I remember at that time thinking about publication: how on earth do you get into it, and have ideas? When I was in Stoke I had ideas, for example I had an idea about connection between the heart and the brain, it was known at the time that people who had subarachnoid haemorrhages got electrocardiogram (ECG) changes, and I wondered why that was. And so I started looking into that with a pathologist in Stoke. So I was already having some ideas about research, for example when people had died of subarachnoid I went in, looked at the post mortem and dissected the heart with the pathologist, and found that you could indeed find subendocardial haemorrhages. I never got as far as publishing it, because I didn't do enough, and then I changed.

TT: Sounds quite extraordinary that you were on your own trying to work this out. Nowadays with training courses and PhD/MD placements, the idea that you'd have an idea and not be able to talk to somebody and do something, is alien.

AS: When I went back to Liverpool I got a message from Cyril Clarke, who was the Professor, a very famous medical geneticist, and a good clinician. He called me in, and said 'I'd like you to think about looking at blood groups in the Chinese population of Liverpool.' I thanked him kindly, and said 'That's not the sort of thing I want to do'. I just didn't have a great feel for doing that sort of research; I was beginning to be more interested in cardiopulmonary medicine. While I was at the Southern Hospital a friend and I had done a survey of all the cases of venous thrombosis and pulmonary embolism over the course of a year. And we wrote something up on that, we did lung scans on them all in the early days of lung scanning. Pulmonary embolus which was becoming recognised as an important thing happening in hospital patients stuck in beds. Then I got the

job at Broadgreen Hospital with a very nice man, Colin Ogilvie who was the general physician, interested in lung disease and I also learned lung physiology there, and ran the lung function laboratory with the SR. After a year I became the SR myself, so I had a couple of years there doing cardiology, looking after patients mostly, but learning a lot about chest diseases and lung function testing. The SR and a local engineer had designed a moving lung scanning machine that could scan people's lungs sitting upright. It was a one-off machine that they'd designed, they called it the 'MD machine'.

TT: When you say scanner, are you talking about ultrasound?

AS: No, radio isotopes, we used to inject radioactive technetium and do ventilation-perfusion scans. I did my MD, mine was the first of many using that machine, hence its nickname. It must have churned out, including my brother about ten years later, about 20 MD under the general and benign supervision of Colin Ogilvie, who was the boss in those days.

TT: Can we come back to your MD later? I want to ask you about Cyril Clarke. You must have made an impression for him to ask you to think about doing an MD with him. He was obviously interested in your career, saw something in you that he thought was something to take forward into research?

AS: Yes, I suppose so. He must have known, he knew my father of course, that's an advantage I might've had? But I was the first person in my year to get post-graduate qualification. You couldn't have got it earlier than I got it and that obviously sent a signal to the Prof of medicine that here's someone who must be brighter than we thought – there's an awful lot of luck in this. But I didn't actually have anything to do with him after that, preferring to go on to this physiological side of things.

TT: Your MD was on lung function in mitral valve disease combining several of your interests.

AS: Yes. Mitral rheumatic heart disease in those days was very common from the pre-antibiotic era, we're talking about late 1960s. People who had rheumatic fever as children were coming with mitral and aortic and tricuspid valve disease. It was the early years of cardiac surgery, so we had lots of those patients, and I took the opportunity of looking at patients with mitral valve disease, who got lung functional abnormalities, they all had lung function tests. Nowadays that doesn't seem particularly unusual but this was the early days of lung function laboratories in general hospitals. I combined the two, 'Why did they get these

lung function abnormalities from mitral valve disease?' And the answer is they have chronic build-up of blood in their lungs, and end up with fibrosis in their lungs, with chronic left ventricular failure, or left atrial obstruction of the mitral valve. Pulmonary venous hypertension, it's called. The lungs eventually end up inflamed and fibrosed. And it involved doing lung scanning of them, showing the changes in the distribution of perfusion to the lungs from the lower parts to the upper parts in the upright position, using the MD machine.

TT: Could you say something about how you did your MD compared with modern day, when you have specific study leave periods.

AS: I was at Broadgreen, on a one-in-two rota, alternate nights I was on call for any medical emergency occurring in these very sick post-operative patients. Also pacemaking had just come in, and I'd learnt to do cardiac catheters, I was doing right-heart catheters a lot at that time – that's one thing I was trained in funnily enough. There was a lot of emergency work, study leave wasn't invented in those days, you got four weeks holiday a year. On the other hand there was enough time during the day, and I set aside half day a week to do lung scans on the patients. I was able to accumulate enough data to write a thesis. I was pretty innocent of statistics in those days. I got a little book on statistics, but fortunately Colin Ogilvie had a friend who was a statistician, so I took all my results to him, and he very kindly did the statistics for me. I accumulated enough to write the dissertation while I was there, but I didn't have anyone to type it out for me, and I couldn't type myself, so I took all this paper and all these data with me to America, where I made friends with a secretary who typed it out for me.

TT: This will sound extraordinary to modern trainees, the question of how you fitted that in your rotas. What about your private life, you were married with a family by this time?

AS: Yes, I had a wife, still got her, and two children, it was difficult, it was a struggle, more of a struggle for my wife than it was for me, and at the end of it I got an offer of a post in America.

TT: You've got the Membership, you've got a publication, you are on the way for an MD, so now you're going to get your BTA (Been to America)?

AS: The BTA yes, but I thought I wanted to do something different, I wanted to go to Africa.

TT: Why Africa? Was this the family link with tropical medicine?

AS: I wanted to do tropical medicine at some stage in my career, and when I was in Stoke I got interested in gastroenterology, and coeliac disease, and I got myself a Crosby capsule, a little thing you could get people to swallow, and you could do intestinal biopsies with it. It was something I taught myself to do, I was doing that as a Registrar in Liverpool, if anyone needed an intestinal biopsy, or a liver biopsy I'd do it. I decided I wanted to look at tropical sprue, and I met somebody who was Professor of Pathology in Nigeria who was interested in this, he was Professor in Ibadan, and he said 'Come out to Ibadan,' and so I agreed that I would apply for a job with him. And then the civil war broke out in Nigeria, and we'd just had the second child, and I thought 'It's not sensible.' Colin Ogilvie had been contacted by Keith Morgan in the United States, in West Virginia, asking if we'd take one of his young doctors Dominic Gaziano, to work with us. He and I worked closely together on the MD machine, doing scans of this, that, and the other disease, it was all new stuff in those days. When he went back Keith Morgan invited me. So that's how I went to America.

TT: You went to West Virginia, with your family, for one year? Two years?

AS: I went for one originally, in 1969, they kindly found money for a fellowship for me, wasn't much but it was enough to live on. In those days we were absolutely broke, and I had to take a loan from my boss when I arrived because I literally had no money. West Virginia, was a very backwards State, but a really nice Hospital, and Medical School, a lot of very good colleagues, slightly eccentric people, because no one in America would dream of going to work in West Virginia. The feeling was isolated, it was like going into the third world, going in to West Virginia, rutted roads from Pittsburgh airport into West Virginia, a single lane road with potholes. It was like another world. But it was a good hospital, a modern hospital with all the facilities and really excellent staff, really committed staff. I was working in a US Government Unit, NIOSH, National Institute of Occupational Safety and Health Unit, though I was employed by the University of West Virginia. I then became a Chest Physician and started looking after patients with TB and things like that.

TT: What about registration and certification?

AS: You had to take an exam called the ECFMG, the Educational Certificate for Foreign Medical Graduates, which you came down to London to take, and it was like taking finals again. A basic medical/surgical exam, plus an English test. Someone in a broad Texan accent read something out and you had to write it down. You had to pass that, and then, certainly in West Virginia, to practise you

had to get a West Virginian qualification. That involved driving down a great distance from where we were in Morgantown in the north of West Virginia to Charleston in the south, through the hills and forests, having an interview with some board down there, then they gave me a West Virginia qualification. It was a formality. Then you could practise medicine, it was not arduous at all, most of my time was available to do research. I went on the eight o'clock rounds in the morning and played some part in looking after respiratory patients, and I also had my own TB clinic in a rather wild part of the northern West Virginia. It was a rural community in a place called Moundsville, and it was the site of the state penitentiary, so we saw patients with TB, who were being treated locally, and we made sure that they got the right treatment. In those days it was streptomycin, PAS and isoniazid, the standard treatment. The first couple of months in hospital usually, and then outpatient supervision. That's where I learnt my TB, which was essential for a chest physician. And after a few months there, because I'd published a few things, they offered me a post as Assistant Professor, and I got a proper salary then, and that was nice. That enabled me then to stay on, they wanted me to stay, and I did stay an extra year. But my aim was always to get the experience of working in America to do some research, and to go back and work as a full-time NHS Consultant. That was my career aim, I'd finally decided I wanted to be an NHS Consultant.

The research in America was a very contentious time, they'd just introduced a law known as 'the black lung law', which was to compensate people with pneumoconiosis. There was a lot of dispute about disability related to pneumoconiosis, and I was very much involved in researching lung diseases in coal miners. It was there that I became aware of the uncertainty surrounding COPD in coal mining, and I proposed to my boss that we study this. We did lots of studies of coal miners, and it was a very productive part of my career, partly because I had this facility for writing, and my colleague LeRoy Lapp was a very good physiologist. There was a physiology laboratory, they were also doing a lot of field epidemiology, using lung function and radiology in the field, surveying American coal miners. This was a huge pan-American research effort. And I came in the middle of this, and my facility for writing enabled me to help them write their papers – I was seen almost as the scribe of the unit. I was involved in doing the studies, some I was simply involved in discussing, analysing and writing the papers. And LeRoy and I wrote quite a lot of papers together on lung function in coal miners. Some of my own personal studies there were related to looking at small airway disease in coal miners, and my controls were mostly academics from the Medical School, they swallowed tubes

for me, and had blood taken, sorts of things like that. Small airway disease was one of the big physiological interests at that time, people were thinking of the early stages of chronic lung disease occurring in small airways, and we've all got millions of small airways, you can get a lot of disease before it actually can be measured by standard tests of lung function. So people were looking for a way of measuring the small airways, early obstruction to small airways. There were two ways, one was the flow volume loop at that time, and the other was changes in lung compliance, with different rates of breathing. It was a very complicated sort of test to do, and no wonder it's been dropped by everyone, it involved swallowing a tube, a body plesythmograph, lots of very complex measurements. Very laborious. But it fascinated me.

TT: What was your knowledge at that time, working on pneumoconiosis, about work elsewhere in the world? Particularly back in Britain and Wales for example?

AS: I did know about what was going on. What I didn't know about was the Institute of Occupational Medicine. But I knew about the Pneumoconiosis Unit in Wales, I knew about the people who had been working there on applying lung function epidemiologically and so on. Keith knew about it all as well, and he was modelling his studies on the work being done by the Pneumoconiosis Unit. The Americans were influenced heavily by the MRC's work. They were in the process of overtaking them at the time that I was there. They were doing a lot of studies on the use of X-ray radiology in epidemiology, which I got very involved in as well.

TT: Were you tempted to stay in America?

AS: I was, and my wife wanted to stay, she loved it there, our social life was much better, she saw more of me as well. I didn't have much on call. I got offers, not just at West Virginia, but I did get offers to go to other places. But I had a firm career objective, which was to become a Consultant in the NHS, at that time, and so after I'd been about 18 months I started applying for jobs, one was a TB job in London, and the other was a Consultant job in Cardiff.

TT: What was the TB job in London?

AS: There was a TB Epidemiology Unit, run by Mitcheson, a well-known academic TB unit. They invited me for an interview, but I got the interview in Cardiff first, which was a NHS Chest Physician job. I remember being asked if I was interested in research, and I said 'Well, primarily I'm interested in looking after patients, but yes, I am interested in research.' They said 'What would you

do?' I said 'I'm afraid I don't know, I have to get in the job and find out what the opportunities are. My track record shows that I do get interested in things'. It turned out that three people had retired, and I was replacing all of them. I was put in charge of the chest clinic, I had 100 beds shared with a great colleague called Bill Foreman, in Sully Hospital. Then we opened a ward in Llandough Hospital. Another person retired, Dr D A Williams, one of the great figures of allergy in Britain, and I got his patients as well. He had an Asthma Research Unit, and he asked me if I'd take that over, so I was running the chest clinics in Cardiff, I was running the Asthma Research Unit, I had 100 beds at Sully, and I had 25 beds at Llandough hospital, and I was on call one in three. And I just did so much, and learnt so much in a short time. Then I wondered about research, and asthma was the obvious thing. At that time asthma was terribly badly treated, and I persuaded my colleagues to allow us chest physicians, three of us there were at the time, to admit all the acutely ill asthmatics to our Ward at Llandough Hospital. We persuaded the bed bureau and the local GPs to send all their patients to us, and we started doing research into how to treat acute severe asthma, which had been called *status asthmaticus.* I changed the terminology, I decided it should be called 'acute severe asthma'. Defined it in practical terms, so you could study it, and we did the first controlled trials of that. I also got interested in fungus, *Aspergillus fumigatus*, there was a mycologist in the unit, so he and I worked together.

TT: It's rather ironic considering the essay you wrote in your Membership.

AS: Isn't it, yes. But it's a fascinating story, still unfinished. The question that struck me is 'why do so many people, get this thing called allergic aspergillosis, when there's a choice of 100 or more different fungal spores in the air that we all breathe in every day, and yet there's only one that causes this disease'. And it actually turned out to be a not uncommon disease, particularly in asthmatics and cystic fibrotics. I got interested in that, it was something I took through my career as a hobby, but it's competition between microorganisms, and in this case *Aspergillus,* something comes off the surface of the spore, which paralyses motile organisms like *Amoebae, Paramecium.* We never found out, because we didn't have the facilities, what this substance is. I published a paper in *The Lancet*, called 'Aspergillus, Amoeba and Asthma'. It's a thing I'm proudest of, of all the things I've done. It's been very little cited, it just didn't strike.

TT: Can I go back to you moving to Cardiff? The MRC Pneumoconiosis Research Unit was there. And that would almost seem to be an obvious link for you, given your work in West Virginia? Had you initially thought you would develop continuing interest in pneumoconiosis?

AS: When I was in America I decided that there wasn't enough known about occupational lung diseases, and Keith Morgan and I wrote *Occupational Lung Diseases,* in my early years at Cardiff, and it was published I think in 1975. They hadn't got a lung function lab in Cardiff so I opened one when we built our new outpatient clinic there, in about 1972 or so. Basically the MRC Pneumoconiosis Unit was falling apart then, I never actually got to work with the physiologists though I did do some investigations of asthma with George Millar. We were interested in exercise induced asthma.

TT: Could you say more about your interest in asthma. You took over Dr Williams' Research Unit?

AS: It was called the Asthma Research Unit, it was a personal thing to him. He was a bad asthmatic himself and been an early figure in the understanding of aerobiology and its relation to asthma. He'd started one of the first asthma clinics in the UK, but he'd got together in the 1940s with a man called Hyde, who was a paleopalynologist. Hyde had produced an atlas of pollen spores, so they had started measuring pollen and fungal spores in the air. One of the main themes of the Asthma Research Unit was trying to relate the spores, or the pollen that you find in the air, with outbreaks of asthma. It was something I'd never heard of before, and that got me into *Aspergillus*. I was also interested in trying to improve the care of asthma clinically, so we continued doing research under the general title of Asthma Research Unit. The technicians I converted into lung function technicians, but one of them kept measuring the spores and the pollen in the air.

TT: Asthma really became more prevalent and took off as you became a Consultant?

AS: The big thing in the 1970s was that there was an epidemic of death from asthma, a sudden spike in the rates. Why was that? It was confusing, and one thing that we did was study retrospectively all the records we could get of people who died from asthma. John MacDonald and his wife Elspeth did this work. I wrote a fairly well known leading article, the first editorial in *Thorax*, about 1978 or 1979, about asthma, how badly it was looked after and how we should improve the care of it. Part of the reason for the increase in deaths was that there

were more people with asthma, and that had started coincidentally just about the time I was appointed, about 1971. So you look at the graph of prevalence of asthma, or admission to hospital, so on, you see the prevalence as going up. Coincidentally, when I went to Scotland about eight or nine years later, the same thing happened in Scotland. But there was an increase in asthma, and that was something that interested me very much, and that led to the research on diet later. In Cardiff, I was primarily a very busy clinician, one in three, and my interest really was trying to improve the care of asthma, and we had the advantage of new drugs at that time. We had a self-admission service, which we introduced, so patients on our list could ring us and say they're getting bad, and they could come up straight to the hospital, and we'd see them, admit them if necessary. We tried to standardise the treatment of acute severe asthma, how much drugs, what way they drugs should be given and so on, so did a whole lot of studies that culminated eventually in a paper in *Advanced Medicine* on the management of asthma.

TT: You seem incredibly busy, and there are other things you're doing as well.

AS: It was a full-time Consultant post, and I didn't have any spare time. I had five clinics a week, and I had ward rounds in two hospitals on a regular basis each week. I was very, very busy.

TT: During this time, what's your relationship with the NHS for provision of facilities?

AS: Facilities? You had to fight for everything, and I was lucky in Cardiff. We got the opportunity of having our own ward, only one ward, so we had the problem of male and female, but we sorted that out. We got a nice new clinic, which I was able to help the architects design. For TB of course we'd got the new drugs so we weren't keeping them in hospital for six months or three months, we were treating them more as outpatients. I was lucky in the facilities I had, but there were no concessions on time, everything had to be done against the clock, and all the research was done by Registrars. I dreamed up the projects, we designed them, and then the Registrars did all the hard work on them.

TT: As you had done in your time.

AS: Exactly, that's the way it went in those days. One thing I did in my early days was design a rotation, so SHOs and Registrars rotated round different specialities, cardiology, neurology, respiratory medicine, renal medicine, for example. Looking back I can't think how I managed.

TT: We're now coming to the period where you move up to Edinburgh. One can see with that wonderful instrument the 'retrospectoscope' that it is all quite logical, but I suspect it wasn't like that at the time.

AS: The Institute of Occupational Medicine was very interesting: they had a staff of 150; branches round the UK; access to all the mines in the UK; wonderful epidemiological research known as the pneumoconiosis field research. It was terrific place, but it was losing its sense of purpose, completely losing its sense of purpose. It had done what it was set up to do, which was to quantify the relationship between coal dust exposure and pneumoconiosis, and it didn't seem to know where it was going after that. It had been set up by an Edinburgh physician called John Rogan. He had persuaded the Coal Board, in the 1960s, to set up a research programme called the 'pneumoconiosis field research', which involved a medical team, an environmental team, and a statistical team. He had persuaded them through the chief scientist of the National Coal Board, who was Jacob Bronowski, a polymath. The Coal Board started this research, and in 1969 they had acquired an enormous amount of data on something like 50,000 coal miners all around the UK, radiological data, physiological data, and questionnaire data, plus they had found a way of measuring respirable dust, and they'd worked out ways of estimating the exposures of coal miners to respirable dust, not just any old dust, but the fine dust that gets down in the lung and causes pneumoconiosis. They'd got this absolute treasure trove of data, and done some preliminary analyses on it, but needed a more consolidated effort. John Rogan persuaded them to set up a research charity called the Institute of Occupational Medicine, which I think he hoped would eventually become part of Edinburgh University, his alma mater, but it had its limbs in every part of the UK, from Scotland down to Kent, where there were coal mines.

So in 1969, nearly 50 years old, the Coal Board had set up this institute. It was a charity, but it was staffed by Coal Board staff. The Coal Board employed us all. I was offered the post as Director and I saw it as a great opportunity, a lot of very bright people, physicists, chemists, statisticians, pathologists, biologists, and technical people all round the UK, working towards a common end. But what was that common end? The pneumoconiosis field research was to find out how much and what sort of dust causes pneumoconiosis, and what action needs to be taken to prevent dust-related disease in coal miners. That was the field research. By the time I went there it had added another limb which was understanding asbestos-related disease as well. That was funded by the asbestos industry, which was a very dubious thing in retrospect. What I saw, having just

published a book on occupational lung disease, was that there were opportunities outwith that rather niche interest in coal miners' disease, and asbestos-related diseases. I did a lot of things, but very gradually. What I did first of all was focus on chronic obstructive lung disease, which hadn't been worked out, and this was a main objective to broaden it from pneumoconiosis to chronic obstructive lung disease. We showed that it was related to dust exposure. That was quite revolutionary in its time. I started looking for work in other areas, and I had a few strokes of very good luck, got a good grant from the United States to look into shale mining, which quite by chance that came from a patient I saw. It's an example of how chance plays a part. I negotiated the job on condition I was able to continue as a chest physician, and I had an Honorary Consultant post. On one occasion I was asked to see a patient who had collapsed after an operation, so I went along to see this poor chap on a respirator. It turned out he'd had an attack of asthma, and I don't know why they'd got him on a respirator, but I treated him, he got off the respirator, and all was well. His pathology came back, and he'd had a bit of lung removed for what was thought to be cancer, but it turned out coincidentally to be pneumoconiosis that looked like cancer. Naturally I was interested, so I said 'Which coal mine did you work in?' He said, 'I didn't work in the coal mine, I worked in a shale mine.' I knew that shale miners didn't get pneumoconiosis, so curiosity took me to contact the pathologist in the shale mining areas. I went to the pathologist, we went through the pathology records, we found out that they had had several patients who had worked as shale miners, had had autopsies, or had lungs removed, and had pneumoconiosis in them.

So I wrote a little paper about pneumoconiosis in shale miners for *Thorax*. This was the time of the oil crisis, oil prices had shot up and the Americans were developing shale oil in the Rocky Mountains. They were very concerned about the health effects. I got in touch with my friends from NIOSH, that I'd worked with when I was in West Virginia, and was told 'Apply quickly to the Department of Energy, you'll get a grant.' So I got a programme grant from the US Department of Energy to study the health effects of shale mining in Scotland. And we had another great stroke of luck, we found, going through the records in BP (British Petroleum), which had taken over the shale oil industry when it finished, they'd a pension fund for ex-shale workers, so we got the records of their names, addresses, their occupations, and we were able to do a mortality study of shale workers, we were able to contact old ex-shale workers and study them, we even did a sociological study of shale miners. Thus, that one patient led to a research programme, and that did my reputation no harm

at all. Things like that that allowed the staff to realise that there was something outside coal. Within a year of my appointment Mrs Thatcher became Prime Minister and started closing the coal industry down, so I was faced each year with budget cuts. We set up a semi-commercial operation, doing occupational hygiene, making money which then came in to subsidise the research. Gradually we became smaller, much more efficient, produced more papers, and had a much broader range of output.

TT: What do you think was the greatest achievement that came from the Institute of Occupational Medicine?

AS: The most important work internationally was the description of the association of COPD with dust exposure, and there was important work on asbestos and how to measure asbestos in the environment. But my most important achievement was the survival of the Institute, because it was on the books for closure. Within eight years of my appointment it became apparent that it was going to be closed down, and I had to plan how to avoid this, because there were by then 100 people or so, on the staff, dependent on me, that's how I saw it. The Coal Board put its hard man as our Chairman, and I got a message that he was out to get me. At a meeting just before Christmas, I presented our work to the Board, and this man got up and made a little speech, he was then Deputy Chairman, saying how useless, and what an expense we were. I was able to deal with it very effectively, because a senior person in a coal mining area had just written saying that we'd saved him several million pounds that year by our work on coal mining machinery, and ergonomics. I had this letter, and read it out to the Coal Board, and this man went white with rage. Within weeks he'd been made my Chairman, so I knew we'd had it. I then got a message saying that he was coming to close us, under the pretext of an inspection. I did the usual thing, greeted him warmly, took him round, introduced him to the staff, and as we went round he said to them 'What are you going to do with your redundancy money?' One of our staff went to the local newspaper, headline in the *Evening News* 'Coal Board research Institute to close.' I knew nothing about this until I got a phone call from this boss, I was at work, about 6 o'clock or so. He said 'Did you tell the newspaper?' I said 'I knew nothing about it, until I saw the newspaper this evening'. He said 'Clear your desk. Who's your Deputy? Tell him he's in charge; you're out, you're suspended.' So I said 'You bastard.' I remember saying that. And I went home, and I wept, it was awful.

TT: What about your staff?

AS: Well I told them, I told my Deputy, I said 'I've been suspended, you're in charge, you take over; I don't know what I'm going to do.' I should say, personally, I was not in a problem, because by then I'd actually got a job part time in Aberdeen. I was secure in myself, but this was my Institute, I'd built it up, its reputation was international, and suddenly all these friends of mine were going to be made redundant. It was awful. I rang up Richard Doll, and there was a silence on the end of the line, and I could see he was shocked. And he said he'd do what he could. Then my wife said 'Well ring the Chairman of the Board,' and she was right. I got to speak to the Secretary of the Board. I said 'Mr Moses has just suspended me.' Again there was a silence at the end of the phone, and he said 'Leave it with me,' he said. A day or so later I got a phone call from the Secretary of the Board, saying 'Right, I've had a word with Mr Moses, and I want you to do a deal with him.' So I met with Moses, and we sat down, and he said 'We're going to close you, but we'll do a deal, we'll give you the money we would've given you over the next five years, and we'll let you have a year to set this up any way you want.' I had tried various methods, universities, going to Aberdeen, perhaps they might take it over, but we were too big to be taken over by a university at that difficult time in late 1980s. So I went back, I said 'I've talked to my senior staff, I've said we've got to set it up as a viable going concern, I'm afraid that means we'll all have to leave, but we've got a year to find something, or retire, we have good redundancy payments from the Coal Board.' That was one thing that made it a bit easier. So we all took redundancy. I'm glad to say they all found other things to do quite quickly, they were all brilliant people, good scientists.

TT: Had you already seen your link with Aberdeen as an escape strategy?

AS: No. When a Chair came up in Aberdeen, a friend of mine applied and was offered it, and he declined, because he thought it was just impossible to control the people in the Department. He told me about this, and I rang the Vice Principal in Aberdeen, and I told them who I was, that I was quite interested in joining up in some way in occupational medicine, but as a part-time job in connection with the one I had in Edinburgh. I had in mind the Institute becoming part of Aberdeen University, at the time. They offered the job to me part-time, and I did a deal with the Coal Board so what they paid me actually went toward the Institute's expenses. When I got the push from the Institute, I went to Aberdeen and negotiated a joint teaching course with the Institute, and on the strength of that I got two of my Institute staff to come and work with me part-time at Aberdeen.

TT: What was your research at that time?

AS: I had to start afresh, completely. I became for the first time a full time academic. Research, I thought 'I want to do asthma epidemiology as far as possible,' and I had an idea, a good idea, which was that diet, was something to do with the rise in asthma. I had the idea about vitamins, and that came really from thinking 'Why has asthma increased so much?' and I thought in terms of protection against inflammation by anti-inflammatory vitamins. That was a very simple idea, and I sat down, wrote a little hypothesis: the increase in asthma, is it a more toxic environment or is it an increased population susceptibility, which I persuaded the Editor of *Thorax,* to publish. It's been well-cited since and I think it did change the way people thought quite a lot. We got some funding, it was all done on peanuts, this, these bits of research were done on bits of money I got from here and there, there wasn't a big funding machine behind me, it was just little bits of money. They all pointed in the direction of diet influencing risk of developing asthma. Then we set up this study of 2,000 pregnant women.

TT: Was this the SEATON study?

AS: One of my colleagues said 'Let's call it the SEATON study, Study of Eczema and Asthma To Observe the influence of Nutrition,' an acronym. I didn't oppose it, I was rather flattered. Children by the age of ten, there's quite a strong influence of vitamin E on their risk of being on treatment for asthma. But it's got weaker as the years have gone by, presumably other risk factors come in and dilute the effect of the pregnancy. We've never said it's vitamin E, we've always said it's something associated with vitamin E, what we don't want is people to think you give people vitamin E and it'll prevent it, because it's much more complex than that.

TT: How were you regarded when you originally published your little hypothesis?

AS: I think it attracted a lot of scepticism. Nutrition has always been looked on as a difficult subject. It seemed to me absolutely central to everything that happens to us, and when you think about it in biological terms, you realise that your genome must have been influenced by what you eat. Particularly *in utero*. I've never really understood genetics, so unfortunate perhaps that I didn't take that offer of a job with Cyril Clarke.

TT: I want to talk about some of your national activities.

AS: What I haven't said anything about is the air pollution research, which became an important aspect of the Aberdeen job. It arose through being asked to chair a Government Committee on air quality standards. The request came from an ex-student of mine from the Cardiff days.

TT: I know Bob Maynard well! You both attended the Witness Seminar on Air Pollution.

AS: Of course you do. He rang me and I said 'I really don't know much about air pollution.' He said 'That's just what we want.' So I got into that, and that was fascinating, again multi-disciplinary, different sciences all contributing towards a common objective rather like the Institute. We came up with justifications for air quality standards, which all went into regulation and then into European regulation. A good example of the benefits of being in Europe, we were able to essentially recommend the air quality standards for the whole continent.

There were issues arising, arguments, discussions; particularly about air pollution causing heart attacks. We mulled over this, the general view was that it must be something associated with hypoxia or some effect on lung function. I came up with a plausible explanation for heart attack occurring as a result of air pollution, wrote it up as a very short hypothesis in *The Lancet* in 1995, and it hit the headlines, really did make people change the way they thought about air pollution and heart disease. Cardiologists were terribly sceptical at first, but the Americans and the Europeans understood it straight away, and it generated a lot of research into cardiac disease.

TT: You started, particularly after your retirement, doing what I might call miscellaneous publications. How did you get started, how do you select the subjects, and how do people respond to them?

AS: I've always liked writing. Before I retired I started writing essays again, and I got an opportunity to publish in a thing called *Scottish Review*, which was a magazine and is now an online thing and from then on I've written regular articles – mostly socio-political things, mostly pleas of an old socialist to go back to Mr Attlee's days, but I do try to explain to the readership what's happening in the medical environmental health world. Some of them are just polemics, some raging against the political, Brexit or something like that. They're ways of stilling the bees in my bonnet, I find if I've got a bee in my bonnet I write something to silence the buzzing.

Sometimes I write for the *Quarterly Journal*, sometimes for *Occupational Medicine*; it's a hobby.

I don't think, looking back on my life, I've done anything particularly important, but I have on some occasions made people think differently, in other words persuaded them to think the way I think. I suppose, I get the most satisfaction when people come up to me and say 'You taught me,' and I think, and this is a rather emotional thing, I think back to those two teachers, and I never actually thanked them, and that makes me sad. I never actually thanked them, and they changed my life. They directed my life, and in both cases I tried to get in touch with them, and they'd both died. So it was too late.

TT: We have to pass forward, remember to thank the next person, and hope that they pass forward to somebody else. I think we should stop there. Thank you so much Anthony.

Figure 12: Mr Ernie Sharp

Mr Ernie Sharp (1921–2015) worked as a dustman in Lewisham Borough Council from 1947 until 1965 when he became Junior Area Manager of the Rivers and Refuse Disposal division in the GLC's Public Health Engineering Department. He was promoted to Deputy Area Manager, then Area Manager, and in the early 1970s he was appointed Assistant General Manager of the GLC's Solid Waste Management Branch. He served in the Armed Forces from 1941 to 1947 as a mechanic, and spent a long period of his service in Egypt. In London, he taught on the waste management course at Hackney Community College for more than 30 years.

12 Sharp, Ernie*

Lynda Finn: Ernie, can you tell me when and where you were born, and a little about your childhood?

Ernie Sharp: 1921, in Holborn, Central London. My father was a bookmaker, mother didn't work. We lived on Old Gloucester Street, just off Holborn High Street, near the British Museum and at the bottom of the road there is a garden and on the side of the gardens is a children's hospital, Great Ormond Street. We played in the street in those days, which children don't seem to do now or are able to. There was a transport depot called Great Baileys and they had horses and carts coming out, shire horses with long carts. Most furniture and stuff was moved that way until they eventually got some lorries. And we used to jump on the side of the carts, and I remember we finished up in Great Ormond Street when I fell off and hurt my leg. When I was five years old the new estates were being built on the periphery of London, that's at Downham, Billingham, and Dagenham, and we were rehoused as being in a poor area and went on to a new estate at Downham, which is now in the borough of Lewisham.

LF: And that was when you were five?

ES: Five. I had my sixth birthday in Downham. I remember that the road wasn't made up, and there were many deliveries to houses by horse and cart so we had a bucket and spade ready to go and get the manure for Dad for his garden.

LF: Did you have brothers and sisters, Ernie?

ES: I had three sisters and two brothers, and I was the youngest. My parents had ten children but four didn't survive for various reasons, I was a twin but the other half came out stillborn.

LF: You were going to tell me about your early schooldays.

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* Edited passages from the interview conducted by Ms Lynda Finn, for the History of Modern Biomedicine Research Group, 30 May and 25 June 2014, in the School of History, Queen Mary University of London. For more details, see 'Related resources' at the end of this volume.

ES: I went to Downderry Infants School and on to Churchdown Boys School, which was an elementary school. I had to leave school at 14 years old; it was necessary that I went and tried to earn my keep. My first job was as a pageboy in a shop in Bromley, in Kent, operating a lift and things like that, doing the messages.

LF: How long did you do that job as a pageboy?

ES: My wage was 10 shillings (50 p) a week, and I gave that to mother and she gave me one shilling and sixpence (7½ p) back for pocket money. Then I saw an opportunity to get an increase in wage by going to the Royal Automobile Club in Pall Mall in London as a pageboy. I was there for the Coronation in the 1930s, and the funeral of the King. I'm not sure how long I was a pageboy going around with messages. I later progressed to *commis* waiter in the senior staff dining area.

LF: How long did you stay at the Royal Automobile Club?

ES: About three years, four years. Then my parents moved to Greenwich, I was still living with my parents, and I got employment in the United Glass Bottles factory in Charlton, and then came the War. I joined the Home Guard, it was the local defence volunteers in those days. So I got a helmet and gas mask and learnt to strip down a submachine gun, the Browning. Then, in November 1940 when there were lots of air raids, they started calling up 21-year-olds into the army. Being 19, I saw the trend, and thought, 'Soon I'm going to be called up.' So I went into a recruiting centre in Eltham and enlisted in the Army as a young tradesman. This was on deferred embodiment, which meant I had to wait for a course to start. I then went to work for Lewisham Council, road sweeping and helping with road repairs and bomb damage. When bombs dropped, the job of the authority was to clear the roads. I did that until I got notice to join the Army, I went to Aldershot and I found I was in the Royal Warwickshire Regiment.

[Editors' note: there follows an extensive description of Ernie Sharp's fascinating war time experiences as a motor mechanic, in the UK, in North Africa, Greece, and Italy.]

LF: When did you leave the Army?

ES: I was discharged in 1947. It's when I came back from abroad, got off the troop ship. We handed our clothing in, got civilian shoes, and a pass to go home. I think about a week later I got a form saying I'd been transferred to the Reserves, so that's the last I saw of my uniform and all the rest of it.

LF: Ernie, tell me about your first job after you left the army.

ES: Well, the system was for every month you'd been abroad you got a day's leave, so I had nearly three months paid leave, from the Army. I didn't want to be a fitter, I'd been a fitter for six or seven years almost, and I wanted to be a driver. But as you would appreciate, every other man had been taught to drive and there was a shortage of vehicles as well at that particular time. So I was going around trying to get a job as a driver and I passed a scrapyard at Greenwich and I just walked in and said, 'Good morning, any work?' I did that for a month or so, still looking for this driver's job. I went to Lewisham Council and said, 'Have you got any driving jobs?' The Superintendent at that time was a clerk in the office that used to book me in when I went there every day for work before the War, and he said, 'Oh, we kept your job for you.' It appears that the rules were that if you worked for somebody for four weeks or more before going into the Forces, they had to save your job.

So I said, 'What is it?' and he said, 'It's helping on the highways.' I was laying cobblestones in a workshop in the main transport depot at Lewisham and there were another two chaps, similar age to me, and they called one into the office and said, 'It's getting near Christmas and we want help on the refuse. We're short of dustmen. Would you help over Christmas?' 'No fear, I'm not going to be a dustman,' he said. Next thing he knows he's got his cards, he's finishing on Friday. Then they asked the other chap and then they got to me. When they got to me I thought, 'I don't want to be out of work.' So I said 'Yes.' I went to help out over Christmas and I was carrying dustbins for the next 12 years. My first lorry I went out with, a freighter low-loader; that was the first time I tipped a dustbin. Then I was detailed to go and fill in with a gang. In those days we had six men working in a gang, one of them was a charge hand and then there was a driver. The refuse was taken to Deptford Creek and tipped into a barge to go down the river to the landfill side down at Mucking in Essex.

So my first taste of being a real dustman was round about the Lee area of Lewisham and the charge hand showed me how to lift a dustbin and what they expected. I'd just come out the Army, I was quite fit. So I got used to it.

LF: Were many of your colleagues also ex-Army or ex-Forces?

ES: Not many of them, no. Some of them had been dustmen for years. I joined the trade union as any good worker should do, became a shop steward. I was married, I had one child and another one on the way so I needed to earn money. One of the things I used to do was, we worked half past seven till half past four, did a 40-hour week, six days a week; four hours on a Saturday. There was overtime in the depot, unloading the trailer, sorting the material and bailing up the paper and the tin cans. And that was usually five o'clock to ten o'clock, so there was quite a lot of work there. And when we finished work at half past four on Mondays and Tuesdays, I would do an hour's work in this man's garden. Anything he wanted done: mow the lawn, help repair the greenhouse, things like that, for two shillings and sixpence an hour. And at his sister's house around the corner I cut the grass.

After a while I was made senior hand on the gang, but still doing this trailer unloading overtime. Another source of overtime was Lewisham market, that had to be swept and washed down when the market stalls left at six o'clock, so there was overtime there from half past five until possibly ten o'clock again, and you had to sweep the High Street so it was another source of overtime until ten o'clock. If they were short of a driver they would also ask me to drive a vehicle, even if it was only for half a day. That was a good break actually. One time they asked me if I could drive a motorbike and I said, 'Yes.' Then I'm in the transport depot with a motorbike and a box sidecar. In the box sidecar was weed killer and disinfectant and I had a passenger on the back and the job was for the summer, six months, to go around the bomb sites that were all weed grown and spray the bomb sites. So that was six months break going around on a motorbike.

Eventually they got a new lorry that had to be emptied at lunchtime. They were trying to do one lorry for one crew instead of changing vehicles, so I took that lorry every day for an hour and a half while the driver had his lunch. So it was a different lorry, something a bit more grist to the mill. Then the Governor came down one day and said, 'I've got a job for you.' I said, 'What's that?', and he said, 'Depot Foreman. That's in charge of all these trailers being unloaded, etc., call the mills when there was a trailer full of paper to go down, and things like that.' So I said, 'No thanks,' and he said, 'Why not?' I said, 'I'll lose all my overtime. I do that gardening, I can't do that.' 'Think it over,' he said. I said, 'I've got two kids, I can't do that.' We're getting up the 1950s now, late 1950s. I talked to Vera, my wife, and I said, 'We can't afford it' – I think my wage was something like £5 a week or something like that. 'Well,' she said, 'I'll get a small job in the evening.' So she worked behind the bar at a golf course in the

evenings for a couple of hours. When the Governor came around the next time, I said, 'It's still a bit dodgy. Vera's got a little job in the evenings, but I don't like that, what with the kids and everything' He said, 'You'll be in charge of the depot, and if you think you should be there to see that the job's done properly up till ten o'clock at night, it's entirely up to you what you do. You don't need to lose any overtime.' So I said, 'That sounds fair to me.' I probably did that for about two years

I then got this appointment as a Foreman. There were five gangs of refuse collectors with a Foreman in charge of each, so we had five foremen who rode bicycles to go around to their gangs, and another job was Friday afternoon and Saturday morning to go to trade premises who had refuse that had to be paid for, to collect the money and give them a receipt. So there was one of those going to be vacant, so I said, 'I'll put in for that.' To cut a long story short, I went to the Town Hall to be interviewed by elected representatives and the Borough engineer was the Chairman. This was an inquisition of what you know and what you do, and they asked a lot of questions. But I got the job.

This does fit in: at that time Malcolm, my son, had started grammar school and he came home one day, very upset. He had an Anglo-Indian teaching maths and he couldn't understand him. So I said, 'That's alright' – I was good at arithmetic – 'What do you want to know?' Well, it's A x A and A x B, and I said, 'I haven't a clue.' So I enrolled in evening classes in Catford College and I found that A x A is A^2 and A x B is AB. I was doing O level maths and O level English. At the same time the Deputy Superintendent had taken the Institute of Public Cleansing exam, and he had a briefcase of all his stuff and he said to me, 'Read this, see what you think.' I said, 'I haven't got that sort of education. I left school at 14, nothing else.' He said, 'Just have a look at it, see what you think.'

About three months after I got that Foreman's job, the Senior Foreman retired and I was in the office one evening with the Superintendent and being his Depot Foreman and I said, 'I'll put in for that.' And he said, 'What are you putting in for it? You've only just got this one.' I said, 'Well, someone's got to make the numbers up.' So I went on the shortlist. When I went in for the interview, the man in the Chair was an ex-fireman, very scarred from being in a fire: 'Ah, we've seen you recently Mr Sharp.' 'Yes, Sir.' 'You were studying weren't you? You were going to college?' I said, 'Yes, I was going to Catford College.' 'Well, what are you doing now?' 'Oh,' I said, 'I'm reading the papers of the Institute of Public Cleansing,' 'Oh, jolly good show and blah, blah, blah,' I came out and I was offered the post!

LF: Tell me a bit more about the Senior Foreman's job.

ES: Getting the Senior Foreman's job meant quite a change in the type of work I was doing. I took over responsibility for the binning and cleansing refuse collection for multi-storey premises and commercial premises. I was in charge of the five foremen on the five refuse collection rounds and the depot foremen. At this time when measurement and work study came in, I was then asked to do work study measurement on the bin rounds. This involved going around with each crew separately with a clipboard and measuring the distance they walked in and out of premises to collect dustbins; how many dustbins emptied per premise; how long it took. I had a schedule to keep up to, which I admit was a little ambitious. Nonetheless, with, fortunately, good men to work with, we reached the Superintendent's targets of increasing the number of bins collected. Bearing in mind that, up until now, the refuse collection system was work and finish, as soon as they finished they went home. If they worked quickly enough and got finished at one o'clock they could go home at one o'clock.

LF: What were the normal shift hours?

ES: Half past seven till half past four with half an hour for lunch.

LF: But if they finished early, they could go?

ES: They could go. This was important on a Wednesday when Charlton Athletic Football Club were playing at home. If there was a football match at Charlton on a Wednesday we had to work like mad on Wednesday morning to get down to Charlton football ground by three o'clock. We did that very often. But work study and work measurement became important at that particular time and made a lot of difference to how work was done. In the measurement, gates had to be closed after the refuse bin was put back; the bin had to be put back on its stance with the lid on. And mostly because kitchens were at the back of the house, the bin was generally outside the back door of the kitchen. So some of the bins were quite a walk to get to and to take back. Possibly as an outcome of this work measurement, bearing in mind that each bin emptied was in and out of the premises twice, a method was devised to cut out one of those journeys. Each refuse collector was given an aluminium skip, which he carried at all times. He carried the skip into the premises, tipped the refuse into his skip and came out and discharged that into the vehicle and then walked onto the next premise, which saved quite a lot of walking, a lot of fatigue and a lot of time. So our ambitious target was achieved reasonably well.

Over the next few months, I think about that time, I attended my first Institute of Public Cleansing annual conference, which was in Brighton in, I think, 1958, something about there. And I got more interested in what is now the Institute of Wastes Management.

LF: It changed its name, didn't it? From the Institute of Public Cleansing?

ES: In the 1960s, somebody argued, 'We don't cleanse the public.' About that time, the Institute ran its own examination called the Testamur. Our Superintendent said, 'Well, you've told them at the interview you're reading the papers of the Testamur, you'd better get day release.' So I had day release going to the old St Marylebone depot in West London, and took the opportunity on various odd days to visit various incinerator plants and landfill sites around the London area, now on the outskirts of London, so that I could get more knowledge of what the other side of waste was about.

LF: Roughly which year are we talking about?

ES: 1959. The Testamur was in four parts. Management was Part 1: Methods of refuse, what refuse is and refuse collection; Part 2: Refuse disposal method, and Part 4 was mechanical vehicles and mechanical plant incinerators and so forth. The system at the time was that you took all four parts of the examinations and most of the candidates passed one or two parts and then took the other two parts the following year. I had a system where I took a copy of the monthly journal home every week from the office and it had a question and answer page for students, which I copied out word for word. I did it for a long time. And on the day of the examination, there was Part 1 Monday morning, Part 2 Monday afternoon, and Part 3 Tuesday morning; Part 4 Wednesday afternoon. You were orally questioned on your answers, which they'd marked overnight in a hotel, or on the A and B. If you'd answered 'A' they questioned you on 'B'. And Thursday morning we were told the results. Much to my amazement I passed all four parts, which was a relief. Having made an effort on Monday night and Tuesday, I went into the Westminster Library and looked up notes and things I thought might come up. I think I was fortunate so diligence and luck were on my side.

Having passed all four parts, I was then made an Associate Member of the Institute of Public Cleansing. Then, any time a post became vacant anywhere above my level, my Superintendent said, 'You're the highest qualified Foreman in London, you'd better put in for that.' I did this two or three times, but my heart wasn't in it. I'd been in Lewisham a long time and I was settled with the family. Eventually the GLC was formed and there was a post there for an Assistant

Area Manager, so I thought, 'Oh, let's see what happens,' and, fortunately, after interview, I got the Assistant Manager job on the GLC covering the parts of South London: Lewisham, Greenwich, Southwark, and Croydon. I then left Lewisham and started working for the GLC in this post.

LF: This would have been 1965 when the GLC was formed?

ES: Yes. London was split into five areas, each had an Area Manager with a Deputy Manager and two Assistant Area Managers. I was the Junior Area Manager, and each year we got an increment, but at one stage the increment depended on your qualification. Getting over this bar, the Senior Assistant only had three parts and couldn't go over the bar. I had completed the exam with four parts, so I went over the bar and assumed the higher duties. The Deputy Superintendent had completed the Institute exam and he was leaving to move up to Cheshire, so there was a vacancy for a Deputy Area Manager. After attending a shortlist I was made a Deputy Area Manager. Unfortunately my Area Manager had a heart attack. He was away for six months and I was Acting Area Manager in that period. He came back for a short time and then decided that he just couldn't stay, and after another interview, I was made Area Manager. I'm now one of five Area Managers, I had the reins to do what I wanted to do in my area, the south area, so I endeavoured to be as efficient as possible.

LF: Tell me about what you did.

ES: I had 13 separate depots: three were waste incinerators, four were landfill sites, and two were river stations. So I was responsible for the manpower and the operations of these depots. Having taken the exam and the full study and work measurement, this is how I looked at things: 'Is there a better way of doing it?' At that time, the central controls of the GLC over the waste area were rather loose. In fact, I probably got away with things I probably wouldn't have at another time. When I did the budget, I put £5,000 to build a wall or resurface a road, but then if during the course of the year I wanted that £5,000 for somewhere else, I just sent a form to the treasurer, and he would change the code over and I could spend that money on something else completely. In a way this could have been a bit of a farce because I could probably put in money for a road I didn't want to do anyway, but I knew I'd want the money some time later on. But with the help of my senior administration officer we kept a tight budget. Money spent was printed out on the every month and we charted this,

and I kept within my budget, and at that time, inflation was rather high so, I think, that wasn't a bad job to keep within the budget. We closed two of the incinerators down.

LF: Which two did you close?

ES: Waldo Road and Churchfield Road, Beckenham and Bromley. The Merton incinerator we kept open simply because by closing the incinerator we now had to take the waste to landfill, an alternative.

LF: Why did you close those two incinerators?

ES: They were very old and pollution was coming out of the chimneys. Nowadays it's so clean coming out the chimneys, it's silly to talk about pollution from incinerators. A lot of people are anti mass-burn; I'm not. Being a member of the Institute of Public Cleansing, I attended many more meetings with my peers and acquired a lot more knowledge. We had to operate landfill sites within the law and without upsetting the environmental public health officers who came round inspecting. The main problem we had at that time was from the transfer stations where we took the refuse in, but as we'd now closed the incinerators, we had to transfer it into bulkier vehicles to go to landfill and we had odour problems that were difficult. In fact, when we bought perfume sprays and put them up people complained about the smell of the sprays. It was peach or apricot or something, and they didn't like that. The other problem on landfill sites, bearing in mind the lifecycle of a landfill site is something between seven to ten days, so as the refuse was being collected once a week, the flies were already in the bin. I'm sure many people have looked in their dustbin and seen maggots. The next stage the flies are coming out. And the heat from the sun on the plastic or metal dustbins exacerbated the incubation time so that when refuse went to the landfill site, when they opened up and tipped the refuse out, then flies came. The flies would simply go to a nearest point where they could settle down in the sunshine and breed. So the great problem we had on landfill was the flies.

One of the tasks I had was trying to solve that problem, especially in the landfill site in Essex, Murston. There was a local pub, and the landlord collected a matchbox full of flies and brought them round to me. All I could say was, 'They're not my flies, they haven't got GLC on them.' Residents complained and said that they couldn't get fly killer so I ordered cartons of fly killer and told the Foreman, 'Anybody wants a can they come round and give it to them.'

LF: But you must have been thinking about a longer term remedy?

ES: We got a manufactured spray, Cooper's dressing number nine, and we had a light tractor with a spray and a tank on the back and it sprayed the refuse all day long. It kept going across spraying the refuse. But flies and mice and other vermin, once you start poisoning them they become immune. We've now got super-rats that Warfarin won't affect.

LF: Your colleagues across the country will all have had similar problems and the Institute would have been looking at it? What other remedies, what other solutions were there because this was a clear public health problem?

ES: The most important thing with a landfill site was to cover it. Under the law it had to be covered every 24 hours, you couldn't leave a landfill uncovered overnight. The last job at night was to cover it with inert material and you would press this down with the biggest earth-moving machine you had to squash it down and get the soil across to make it more difficult, and you did your spray. It didn't solve the problem but mitigated it. Probably now there's still odour problems on existing landfill sites. Another problem was getting the vehicles on and off in inclement weather. At the same time, I had to be careful that you controlled the run-off from the landfill site, it's now called 'leachate' – more highly contaminated than pig's waste – so the problem on a landfill site was controlling the leachate.

LF: And what measures did you use to control it?

ES: On one landfill site we had a pond at the bottom, it was an inclined landfill site so everything would run down the road into the pond. The pond would go black and smell. We could control that by aeration, pumping oxygen into it. Once we'd aerated it we could pump it lower down the hill to a grass field that sloped down to a river. We could pump our reasonably clean leachate onto the grass and that would, by the time it got down to the river, it didn't affect the fish in the river. It sounds simple talking like that now but if you think of the problem we had at the time, trying to control it, it wasn't that easy.

The two basics coming from a landfill site are methane and carbon dioxide, possibly in the proportions 60 per cent methane, 40 per cent carbon dioxide. Methane is a poisonous gas with no smell, so that's one thing one must be careful of in decomposing refuse. In a landfill site at Murston, a quarry where Croydon's waste used to go, as the gas was produced, the side of the chalk quarry had gaps in the chalk and the methane was going up through the gaps

and above on the top – if you imagine a cliff with a fence and then behind the fence were gardens and houses. The methane was killing the plants in the garden, so that's another problem we had. A sign of this was, in particular, gooseberry bushes had white crystals forming on the roots from the methane and were being killed. We experimented by stopping the methane by burning it. The divisional manager and a couple of scientists discussed this, eventually we drilled a hole down into the refuse – once it's compressed it's difficult to drill through it – and we put a pipe down, a metal pipe with holes in the bottom, and if we lit a bit of paper to burn the gas at the top but as soon as you took gas away there was too much oxygen. So then we got in the experts in to devise a type of gas burner, like a Bunsen burner. If you don't open that hole at the bottom of a Bunsen burner, you get a different type of flame. Open the hole and then it burns properly, and this is the effect that we had to get. We built a brick construction with six of these burners in and did our best to pipe what we could of the methane into that. That was, as far as we were concerned, the first time anybody had tried burning the gas off from a landfill site.

LF: That was pioneered in the GLC? Was it adopted by anyone else?

ES: Now everyone's using it. The Divisional Manager was going to write a paper on this for the journal but he never got round to doing it. Nobody else could do it because he was going to. We successfully utilized the methane from the landfill site at the Thames Board Mills – we were driving the heating, or driving the pump for one of their paper lines. Then the GLC decided to have a reorganization of the waste disposal section and the Divisional Manager was made General Manager and he called two of us Area Managers into the office and said, 'I want you to be my Deputies.' That must have been in the late 1970s, maybe 1980, I became Assistant General Manager. I'm now in charge of three of the Area Managers covering East London, all of the river stations around Southwest London with the other area manager, and North London, West London, and the Edmonton incinerator, which had just been built. I had more duties, I used to travel a lot to the different areas, different depots. I suppose it sounds a bit trite saying 'looking at standards', but I spent a lot of time going around the depots and the senior officers from many of the authorities were lecturing part time at Hackney College on the Higher National Certificate (HNC). I had 13 depots, some had foremen, some had supervisors. There was always a problem that when the vehicles came in to discharge in the depot, whether it was an incinerator or a transfer depot, there was a queue because they all loaded their vehicles about the same time and they all came in together and

had to take their turn to tip and they all were impatient because to them they're wasting time. In an effort to make my men understand why they're in a hurry and always upset, because this is what their work was. I explained their work to my 13 depot managers.

So I started this class in a depot down by the river in a river transfer station, there was a spare room there. A cleansing manager from Waltham Forest who was lecturing at Hackney College, said, 'Let's start up a course at the college.' Before that, other authorities said, 'Can we send some men on to your course?' I said, 'I don't mind? I can talk to 20 as easy as I can talk to 13.' Lambeth gave me a classroom in a depot in the borough, and I was telling the refuse collectors what happens in a transfer station and at the landfill site, why we can't rush things just to let them get out quick, why we had to be methodical apart from health and safety, and people walking about in a depot. Eventually we started the NEBS (Examining Board in Supervisory Management) course in Hackney College. All sorts of chaps were coming: drivers, sweepers. As I saw it, it was a first rung of a ladder. Somebody put me on the first rung of a ladder, now I can help somebody else. So we had the examination for that and they also got a certificate from the Institute of Public Cleansing to say they'd passed the supervisor's course, the first certificate some of these chaps had ever got in their life and never thought they'd get one.

LF: Was Hackney one of many colleges, or were there a few colleges doing this?

ES: There were a few colleges doing it. A few of them were doing the HNC, but a street sweeper couldn't go on the HNC course just like that, he had to do some sort of learning to show that he was qualified to do it. But the NEBS people that passed could go on the HNC, which many of them did. I was lecturing on the HNC and the NEBS. To give the lads a bit of prestige, they used to be invited to the Institute's Christmas lunch, which is a prestigious affair and they were presented with a certificate there which I thought was terrific. Even now when I go to meetings, there are still lots of ex-students and to be honest I don't recognize a lot of them. 'Oh, are you lecturing in Hackney, Ernie?'

LF: When did the course at Hackney stop?

ES: Oh, seven or eight years ago. The Government withdrew funds, and so the college wanted to start a degree course, what do they call it? A first step on a degree course. I said, 'At 88, I'm sorry, I'm too old to start anything fresh now.' To be honest, I was going to Hackney by bus. I walked down to the bus garage to get the 47 bus, which was terminal to terminal then, and I had to walk from

the other end at Shoreditch so I was longer on the bus going and coming back than I was lecturing, and I did a two-hour lecture. It got a bit much. I did it for 30 years, or 35 years I think, so I did my whack. Now I have the pleasure, as I say, of going to meetings and seeing people that were on my course 'This is the bloke who taught me all about rubbish.' That sort of thing, you know.

I would go out Saturday and Sunday to depots. In fact I'd pick my mother up, or my sister or my daughter or someone, pick them up either Saturday or Sunday, 'Going for a ride, do you want to come?' 'What tip are we going to today?' I said, 'I don't know, we're going down this way, we're going down to Kent. I'll call in there on the way and then I'll call in that one and then we can go there for lunch', and that was a habit.

LF: So a day out was a day visiting the tips?

ES: Yes. I remember following one path down and it went on and on and on and I finished up in the middle of a farmyard and had a difficult job turning the car around to go out. But they seemed to enjoy it. 'What trip today?' They knew they were going somewhere, and they were interested.

LF: You've seen so much change: in collection, in transfer systems, and in disposal.

ES: The changes in storage are an item to go through on their own. We had refuse coming down the refuse chute in multi-storey premises onto the floor and that was shovelled up. Then we put containers underneath. At one time they tried huge paper bags underneath but that wasn't a success. Then they got galvanized metal containers but they had to stand on blocks so you could put a trolley underneath to wheel them out. Each lorry had a trolley underneath the body on a bracket so the refuse cleaners had to take that out, wheel it under, jack the bin up, pull it out, put it on the back on a vehicle with a brace and arms that went around and gripped the body, and then tipped it up into the vehicle. Some of the flats had square bins in, some had round ones. The square bins were the old system, mainly Southwark Council and always in multi-storey premises. There was always a problem at Christmas because of Christmas trees, which blocked the chutes. Occasionally you would get the chute on fire where somebody put hot ashes in, or the bin on fire – not too great a problem but they used to be there. They were things that came along and you had to solve. More multi-storey premises were being built, so the rounds were getting bigger. This was the beginning of some of the mechanical lifting gears on the back of refuse vehicles. Sheffield were one of the earlier ones with what was called

dustless loading. The dustbin lid was fixed, similar to the wheelie bins we've got now, but if you can imagine the wheelie bins as steel bins, not quite as big as these ones now, and we're talking about 60 or so years ago, perhaps less; these were an innovation. They would be automatically tipped into the dust cart with the lid flipping open, and it was called dustless loading in those days. Then the wheelie bins came along and we've got more refuse coming up, and because there was room in the bin then they would put all sorts of stuff in apart from normal refuse. It would be hard-core and things like that would go in, so the weight increased. With the lifting gear on the rear end, on the tail of the vehicle, protruding out of the back, it exacerbated the weight on the rear axle. At that time the law was nine tons was a maximum weight on a rear axle so by the time they put refuse in the back as well at this point we've got the refuse and the lifting gear at the back but nothing up the front, and the vehicle's tilted slightly, putting more weight on the back axle so when the vehicle licensing authorities, when they checked, they found that the back axles were overloaded. This led to twin axles being put on the back. The first thing I said, 'Well, let's take advantage of the length of the chassis and put a bigger body on', so now we've got bigger bodied vehicles with a compression gear on the back to maximize the payload, so the payloads went up.

A similar thing that happened was a lot of London's refuse was tipped into barges. Deptford went into barges at Deptford Creek; Lewisham's refuse went into barges at Norman Road; Southwark's went into barges on the canal; Lambeth and Wandsworth went on the river, but there were many other barging stations in creeks and canals. They were going down river to Pitsea or Rainham in Essex. If there was a fog on the river, which we got in those days, everything stops, nothing moves on the river when there's a thick fog. So if a fog lasted more than a day, we had no empty barges to put the refuse in, so we've now got a problem: where are we going to tip the refuse? The alternative was, well, where's the nearest landfill site? As London grew, the available holes that had been excavated for chalk and sand and ballast were being slowly filled up so we were going further and further from London to tip into a hole. That meant that if the refuse collection vehicle had to go to the landfill site it was away for an hour and a half, maybe two hours, and you got six refuse collectors standing waiting to get their work done because they want to get finished and go home. You see the types of problems it caused.

LF: I just want to ask you a bit about the work and finish system. When did that change and tell me what led up to the changes and how it changed?

ES: Well partly because of work study and work measurement, and we've already heard about council cuts. The refuse, or cleansing, department was the Cinderella of the local authority. This was even mentioned by the Chair at our meeting. She said, when she was elected MP, 'Nobody wanted the dust job'; same applies with local authority. They're in for four years and they all have their pet thing, it could be gardening, parks, swimming pools, health and safety, welfare, old age pensioners, but nobody wanted the refuse section. So the councillors elected with, shall I say, a bit of go in them would fight for their department. The one that got the waste was the least inspired of them, so that they didn't get a look in. In February, every Treasurer is working on his pie chart. And by the 1st of April, he's got to carve that pie up into pieces to give each section a budget that they've got to work to. Everybody wants the biggest bit of the pie. I would assume from this the cleansing department always got the crumbs that were left.

LF: I do want to ask you about protective clothing in a minute but just tell me about the changes in working hours and shifts.

ES: A 48-hour week to begin with; eight hours carrying dustbins, emptying dustbins, taking them back could be fatiguing so why should we work 48 hours a week? The first thing they cut out was four hours on Saturday, Bear in mind that the job was still 'job and finish' and quite a few of the chaps had another job to go to of some sort. So hours became important and the unions fought for them to be cut, and every time there was a cut they fought for another one, another cut. I think it's down to about 32 to 33 hours now they work, but that's a big change that occurred and it also occurred because of the changes in method. Method study and work study, method study made a lot of difference. I mentioned about the aluminium skips which saved a dustman a journey, so if you imagine we've halved the walking the dustmen did, we could cut the hours down and still do the same amount of work. When they brought the wheelie bins in there was also a lot less walking and a lot less fatigue. They increased the numbers of bins per man, which again allowed them to cut the number of hours without costing anything. Money was important, what things cost. It still is, isn't it? Now they've gone so far as to say your bin must be on the periphery of your premises or else we won't empty it, so they have practically no walking, just across the kerb to the vehicle. Even then, they drop the bin on the footpath without taking it back to the premises. They do a lot more bins per man a day. So cost-wise, the cost of collection went down dramatically so that could accommodate the cut in hours.

LF: Tell me a bit about the changes you've seen in protective clothing for collectors, because you must have seen enormous changes since 1947.

ES: The last time I carried a dustbin it was two overalls and a donkey jacket. But now, as Nick [Patterson] has said, with Westminster being a wealthy borough, what one has to consider in local authorities is how much does a penny rate fetch in? Westminster could afford to buy clothes and boots where other local authorities didn't have that sort of money. Now, they would have overalls, possibly waterproof trousers and jacket and boots, gloves, and they may even give them a sou'wester, something like that, to wear. Health and safety would say various things were necessary, like gloves. With all the drugs and needles about one's got to be careful about that, and broken glass. I don't know when boots came in, I've never been issued with boots. In fact, I wore trainers, which in our days we called pumps. We used to wear those because we could get around quicker. We probably wouldn't be allowed to even wear them now. It might sound like bragging when I say we used to run with the dustbins, especially with the empty ones, taking them back especially Wednesdays when Charlton were at home. Health and safety plus the unions pressed for more clothing. There were other things. In my time, when we tipped the last dustbin into the vehicle, I would get my bicycle and ride home. When I got home I would change and have a bath. Later on they had showers and baths in the depot so you would have a cupboard in the room, you could change in the shower room and come home clean. But in my day I used to go home, and I always had a job of getting overalls washed and patching them. Where I carried the bin on my shoulder and on my back the overalls wore out so I was always putting patches on them. I used to sole my own boots with an old car tyre, cut pieces off the car tyre and nail them to the bottom of the boots. I also repaired my own boots in those days, couldn't afford anything else. Protective clothing was not only important for the refuse collectors, even on building sites they never had protective clothing but you will see now that protective clothing is worn everywhere, now you can't work on a building site without a hard hat and visibility jacket.

LF: Ernie, what other changes can you tell me about the occupational health of collectors and employees more generally?

ES: When I was a shop steward I went into the boss and said, 'We want danger money'. This is when we stopped tipping into the barge and went down and tipped at the landfill site. He said, 'What do you want danger money for?' I said, 'Because we're now going onto a landfill site and that's dangerous.' In the vernacular he told me where to go. I also went in because the men complained

about having to carry these aluminium skips, they thought they didn't want to carry those all day long and they were refusing to carry them, and as I was a shop steward it was my job to go and tell the Governor.

LF: Why didn't they want to carry them? Because of the weight?

ES: Well, you had no relief from carrying, you're carrying all the time. It's one of those things, they just didn't want to carry them. And I said, 'The union have instructed us not to carry those skips.' He said, 'Who's your boss?' I said, 'You are.' 'Now go and carry the skips.' I went back and said, 'The boss said you have to carry them.' They said, 'Alright.' So it was a wasted effort. When I got promoted I had to leave the National Union of Public Employees and join a senior, more professional institute.

LF: I want to know about when you decided to do your degree, and you then went on and did a Masters. Tell me when you started thinking about it and how you went about it.

ES: There were one or two problems at work, nothing that I couldn't overcome but I was getting a little dissatisfied one way or the other, I don't know why. They had built the Thames Barrier and there were five officers on the same grade as myself there that they had to find jobs for, so they offered any officer on that grade the opportunity to take early retirement. Being a little dissatisfied I said, 'Oh, I'll go.' That 'I'll go' lasted about four or five months: 'You can go in June. No, go in July. Go in August.' I'm not sure when I finished, September or something like that. So I took early retirement about 1983. But still being active, I was still lecturing at college, I was still refereeing football matches, I didn't want to sit back doing nothing so I wondered what else I could do. I was still attending meetings at the Institute of Wastes Management and the Association of London Cleansing Officers, I hadn't cut off all links with it. I was still very much involved with all the changes they were making. I tried to gather a bit more information together and the Institute of Wastes Management applied for chartered status, and the committee in the House of Lords that grants a charter required 75 per cent of members to hold a degree. There were many members similar to myself who had passed the Testamur but didn't have a degree. So there was a case of 'Oh, we're going to be second class members.' Oh no, no. So they chatted to Northampton University and said the Testamur can stand as an admittance to get onto a degree course: to give you credits on a degree course. Well this went on for three years. And at the annual general meeting down in Paignton, Torbay, after they generally said, 'Any other business?', I got up to

the microphone and said: 'For three years you've been saying that we're going to link up with Northampton University so people like me who haven't got a degree can get onto their course with some credits that would help us. And nothing's happened in three years. Well, I would like to say, when it happens, I'll be the guinea pig.'

Following that, every year we have a meeting at Imperial College on education and one of the speakers was from Northampton University. As he left the room I chased after him and said, 'When's this thing going to happen?' 'Well', he said, 'we want someone to start it'. 'Well, I'll start it.' He said, 'What have you got?' I said, 'nothing, only the Testamur, but the Institute said you were going to link up'. They arranged for me to have an interview with two people at Northampton University. A Professor from Southampton University and one from Northampton, Professor Paul Philips. They asked me about rubbish, I talked about rubbish for about an hour, I suppose, and they just said, 'Alright, you're in.' I had no O levels, no A levels at all and they said, 'You're in.' And Paul Philips was one of these, and he became my mentor, and I must say from day one he pushed me. I did it day release working from home. I had ample stuff, I've got a load of it upstairs. I used to send it or take it into Paul, I'd e-mail it in and it'd come back full of red ink, 'You can't say this and you can't do that.' I've got more red ink up there still than anything else.

LF: Your dissertation?

ES: I had to do a lot more than that, but it's all here, most of it anyway except the two industries, the leather and the paper pulp that I had to work on. I used to go up there occasionally and have long chats with him, and he used to tell me where I was going wrong and how to do things. It was completely new to me, completely. One of the things we had to do was to give a PowerPoint presentation to others, and this was at Nottingham University. So I did a PowerPoint on 'North London's Waste Plan' for the future, which I think earned me a bit of merit.

LF: When did you finish that degree?

ES: That was somewhere about 1986, perhaps 1988. Because of the help of Paul, I won't say it was easy, but it was a lot easier than I'd imagined. I did a lot of work, of course I did: you don't get anything for nothing in this world. My *viva voce*, which is the accolade at the end, I passed with flying colours apparently. Then, as a joke, I had the degree presentation and Paul and a few other people were congratulating me and, with my peculiar sense of humour,

I just rubbed my hands together and said, 'Right, well what's next?' And Paul said, 'Your Master's degree.' And I said, 'No, that's a failed PhD. I'll do a PhD at 88.' I must have been 88 then. He said, 'It's a six-year course, it's a bit late to start a doctorate. Do a Masters.' So I said, 'Oh alright then, I'll have a bash,' not thinking I would get it but, oh well, let's carry on. I found that research for a Masters is completely different from the Bachelor of Science. It finished up as The Interpretations of EU directives by local authorities, something like that.

LF: Your Bachelor's dissertation was on the history of collection and disposal within the GLC?

ES: Municipal Waste in London to round about 2000.

LF: Ernie, reflecting back on a very long career, what would you say are the best and the worst times?

ES: The worst times were probably carrying dustbins in inclement weather. When it's pouring with rain or snow, that wasn't very comfortable. Sometimes working when other people weren't, I didn't feel very happy then. There weren't very many bad times. I'd had a period in the army so I'd known a bit of regimentation and I was reasonably fit through exercise in the army so I wasn't uncomfortable with what I was doing. The *esprit de corps* among the refuse collectors meant working wasn't the chore that it could have been. One didn't get up in the morning and say, 'Ugh, I've got to go to work'. It wasn't that sort of attitude. I was fortunate enough to progress away from the manual part of the job, I was getting more involved in the management and control of things, and educating myself on the way. I enjoyed going to meetings and discussing things with other people, I still do enjoy going to meetings, only now I'm retired I can be devil's advocate, which I am often, and ask the question that others probably wouldn't ask or say things that others wouldn't say.

For many years in meetings I've said, 'I'm a 40/40/20 man: 40 per cent recycling, 40 per cent incineration, 20 per cent into landfill.' When more composting came into the picture, before that there wasn't very much composting, it was only gardening stuff from the parks' department. But when composting came in more, I took ten per cent away from the landfill and put it into composting, so 40/40/10/10; 40 per cent can go for incineration where we can recover electricity or power from it – combined heat and power – it's not being wasted.

LF: Ernie it's been an absolute pleasure to talk to you. Thank you so much.

Figure 13: Mr Mick Wright

Mr Mick Wright CEnv DMS MBA MCIWM (b. 1949) worked as a Refuse Collector, then as an LGV (large goods vehicle) Driver for Luton Borough Council from 1974. He was elected as a Senior Shop Steward for the Transport and General Workers' Union in 1977, and in 1981 he was elected as a Councillor for Bedfordshire County Council where he served until 1989. He became Quality Insurance Inspector for Luton Borough Council's cleansing contract in 1990, then Refuse Collection Manager, Street Cleansing Manager, Cleaning General Manager, and finally Head of Waste Management until his retirement in 2009. He is writing a book with the working title, *The History of Rubbish in Luton from 1850 to 2010*.

13 Wright, Mick*

Lynda Finn: Mick, can you tell me your date and place of birth and something of your family background?

Mick Wright: 1949 in Luton. My father was a factory supervisor and worked for Commer Cars, My mum used to do various jobs. She was actually a catering manager for Whitbread's, they were brewers in them days, but she packed up work quite a long while ago. I've got one brother and one sister, both younger than me. My parents got married in 1942 and decided they wouldn't have any children during the War. My father was in a protected occupation because he worked in a factory making the army trucks. Eventually he got called up, to go and service the army trucks in Germany when the British Army at the Rhine was set up. When he came back they decided to start a family, and I was the first.

LF: So it was a post-War childhood? What sort of memories do you have?

MW: We used to live in a two-up, two-down in Luton. There was a big stable at the back of us which belonged to one of the local families who delivered milk. Polly, the horse, is one of the first things I can remember [laughs]. We moved from there when I was four to a place my parents were buying, sort of halfway between Luton and Dunstable because Dad worked at Luton. I went to primary school, infant and junior it was in those days, then on to secondary school. I failed my 11+, people were quite surprised by that, I think, because they generally thought I was clever enough to pass. I took the 13+ and went to Luton Technical Grammar School. I stayed on there until I was 18 and did my A levels there.

LF: What did you do you're A levels in?

MW: Economics; British constitution; economic history; economic geography, those were the things I did. I got quite good results, good enough to go to university, but I'm afraid the romance of becoming a musician got the better

* Edited passages from the interview conducted by Ms Lynda Finn, for the History of Modern Biomedicine Research Group, 8 July 2014, in the School of History, Queen Mary University of London. For more details, see 'Related resources' at the end of this volume.

of me. I was always a musician. I played violin when I was at secondary school, taught violin, and then swapped to guitar when I was about 11, and got the romance of the wooden planks. I got to be quite proficient at it, I joined a professional band when I was 14 and that went on until I think I was about 20. LF: So after your A levels, what happened?

MW: I ran off touring and things like that, went to tour America, Germany, Sweden, France, I went all over the place. My band was quite successful. I used to deputize with a lot of people as well. My friend from grammar school days, John, was a pianist and was playing with The Kinks, and when the Davies brothers had a massive falling out, they recruited me to go and play guitar with them on a tour they'd got lined up. So I played with The Kinks for about seven months, and played on one of their hits, 'Lola'. 1970 that was. Then, eventually, I thought it wasn't really any life, I wanted to settle down, get married, so I packed it all up in 1974. Well, not quite, I carried on playing in sort of semi-pro bands and things for a long while after that, but professionally no, I don't know, it seemed to be getting the better of me, all the touring and things. So I started to get jobs and work, and I had quite a series of different jobs until I alighted on becoming a refuse collector.

LF: So you gave up playing with The Kinks?

MW: I never was mates with them or anything like that. John was my mate, and the Davies brothers had a long history of falling out. This particular incident had come about when Ray Davies threw a bottle at his brother and it hit him on the head, and they really fell out over that, and they were going to have nothing to do with each other, but then they had some sort of re-rapprochement and got back together again, and sacked me. [Laughs]. That's okay. I got other work and things, it was only about seven months, it wasn't a long period. That's probably my claim to fame.

LF: You're about 25 when you moved into refuse? Tell me a bit about that job.

MW: It was February 1974, I got married in April 1974; we've celebrated our 40th wedding anniversary. It was with Luton Council. The guys who actually worked at the disposal site at Luton Airport tip were short of some people so I got hoicked into that. So the first two weeks I worked at the tip. I was doing jobs like picking up litter from the edge of the site, seeing the trucks back, I'd been a banksman, making sure the trucks don't fall over the edge of the site and stopping them, that sort of stuff. Eventually, they thought I was trustworthy enough to be in the office and write the weights down of the vehicles as they

came in, they had a weigh bridge on the site, and that was it. But that only lasted a couple of weeks. I then went back to the other jobs in the depot, and did various jobs as you used to when you were a spare refuse collector, including street cleansing jobs, bulky household waste collections and so on. Then one day they put a scratch crew together to just go and clear about ten roads of refuse, the truck had broken down. The truck had become unavailable, so they pulled us off whatever we were doing and told us to go and collect these roads, and that was the first experience I had of refuse collection, so I got broken into it quite gradually. I was lucky, there was a guy there who was quite an experienced refuse collector who showed us how to lift the bins.

LF: What bins were people using in Luton at that time?

MW: Mostly they were the galvanized, I think 3¼ cubic yard bins with the metal lids, and you had a fair amount of ash in those days, surprisingly for the mid-1970s. On the private estates not so much, they had central heating, and they used to buy their own sacks and put their sacks out. But on the Council estates there were still coal-fired back boilers. They'd moved on from having open fires, but there was still ash and I remember the ash going down your neck and all that stuff.

LF: When did that stop completely?

MW: Eventually, towards the end of the 1970s, the Council decided that was antediluvian and they were going to go over to boilers or back boilers on gas fires, so by then it stopped. I think most Councils had got their act together by then. Obviously you got some high-rise developments that never had ash or anything like that, flats they never used to have it. A lot of the schools used to have ash as well.

LF: Mick, you were just saying that some areas used sacks?

MW: It tended to be more on the private estates where they'd already got central heating, they were moving more towards more modern contents of a refuse bin. There was a lot of packaging and things like that. They used to buy their own sacks and put their own sacks out, which used to help us a lot. Obviously they were not so heavy and we just used to chuck the sacks in as we drove along the road; it was a lot easier than collecting bins. It wasn't totally divided like that, but generally that was the way it worked. The round I was more regularly on had quite a lot of bins still, which gradually faded. The Council as well, once they'd got rid of ash and it was noticeable that it was going, they started then to

supply people with plastic bins. That was better as well because obviously they were a lot lighter. That gets us towards the end of the 1970s, I think, as regards to the general household collection but, of course, there was the bulk household collection, the big Paladin bins, metal bins. They were almost the same as these modern Euro bins, the thousand-litre ones. They used to be at blocks of flats, schools, trade premises, things like that. I worked on them as well, of course, as part of being a spare collector and a spare driver.

We had three rounds at one time that just used to collect those bins. I remember them vehicles, they were Knorbas [Geesinknorba], and they had an Archimedes screw in the back, a water screw, and this one used to compress the refuse. It's a Swedish design. The refuse used to go into the hopper and the screw used to go around and push refuse into the back and compress it. It used to carry a fair load as well. The only trouble with them is if there was anything dodgy in the bin, half an engine or something, the screw would not work, so it had sheer pins on it. The drivers had a bag of sheer pins in the cab and if anything did happen to the Archimedes screw, he took the pins out and replaced them. That was a good way of working, and they were quite inexpensive collection vehicles, very efficient, used to work well. I suppose the next thing you get to then, as far as the bins were concerned was about 1982, Luton Council noticed that some Councils were starting to go to wheeled bins, and various visits were organized. Various members and officers went to look at things, watched the crews operating, and saw what it was about. I think there was then a growing feeling that perhaps that was the way to go. They were getting quite a lot of injuries to the refuse collectors from sacks. There was one entire round that was on plastic sacks, and they were always getting stabbed with cutlery and knives and forks and broken plates and even some injuries with hypodermic needles and things.

LF: People were just throwing everything into the sacks and there was no sorting?

MW: No, you weren't aware of it until you got some stab in your leg.

LF: Tell me a bit about the protective clothing.

MW: We had various phases of protective clothing. When I first got there you used to wear an overall like mechanics wear really, and we were issued with donkey jackets. They were dark blue. Then we went to the bib and brace, and the blouson jacket. That was also blue: Chelsea blue, if you like. It had a stripe in the legs. That looked quite smart. Then we went to the dreaded orange overalls.

LF: Tell me about the orange overalls, about the clothing and how it changed, and then why you were protesting against the wheeled bins.

MW: There were two serious injuries to refuse collectors, whether it was anything to do with high visibility clothing or not, we were never totally convinced. One was doing what he shouldn't be doing, which was sitting on the back of the vehicle. He tipped the bin out and fell off and the vehicle reversed over him. And the other one, it was a bit more like he walked from behind the vehicle and a car just hit him. The car was going too fast, and shouldn't have been going that fast when they saw the vehicles. So the Council then decided they were going to introduce orange overalls. We said, 'Well, surely the high visibility jacket would be enough, people would see that.' But no, they were insistent, and there was a lot of resistance from some of the people. Orange had very significant bias as far as they were concerned.

LF: What was the reason?

MW: They were Catholics. We had quite a group of people, Catholics from Belfast and quite a lot of them via Scotland, just as bad, or good, or whatever. There were also a lot of Scottish Catholics from Port Glasgow and Greenock who felt discriminated against and came south to get jobs. Quite a number of them, about half the workforce at one time, so they weren't very happy about the association of the orange, which we had some sympathy for. Certainly, one of the Senior Shop Stewards in the other Union was a bloke from Belfast, a Belfast Catholic, and he was very, very unhappy having to wear orange. Anyway, the Council forced the issue and said it was health and safety and in the early 1980s, the Health and Safety at Work Act was fully in force. But then the Council changed its mind and went for more protective clothing.

LF: One would think a sensible Council could easily produce, or have produced, another equally highly visible colour, it didn't offer protection; all it offered was visibility.

MW: Yes, visibility, and, of course, it showed all the dirt, every dirty mark. Being in a refuse collection environment, they used to get very dirty. So the Council introduced a laundry service for the refuse collectors. So we'd have three sets of overalls: one to wear, one to keep, one in the wash. They relented in the end. They came up with the idea of having Kevlar inserts in the trousers, which was adopted by loads of Councils.

LF: Can you describe that?

MW: It was the material developed by NASA (National Aeronautics and Space Administration) for the space suits for the astronauts. It's very hard to puncture, you can stab it with anything and it will bounce off. The police and the army use it in their flak jackets, to prevent stab injuries. It did work and the Council introduced it.

LF: For the whole uniform or just the trousers?

MW: For the trousers. They're most susceptible to leg injuries: both street cleansing and refuse collectors, because they're picking sacks up which you're never quite sure about. Kevlar came in the dark green colour, like an army sort of shade of colour, and they didn't go with the orange, so they went back to green. This was mid-1980s, I think. Orange was gone. They had fluorescent bands on the legs and on the arms, and they also wore the fluorescent jackets. That uniform was a lot more acceptable. I haven't heard any complaints about the protective clothing since then.

LF: Was there a unified policy across local authorities?

MW: There was quite a bit, but very localized, very informal. There was a Bedfordshire Cleansing Officer's panel that used to meet, we used to get together and swap ideas and examples of good practice. Other people used to attend as well: Milton Keynes used to come quite often and there were some similarities between Milton Keynes and Luton; not that many. But on a wider scale than that, it wasn't a very good information exchange. There is probably a lot of it still, one recycling system in one district is totally different to the one next door to it, and so on, whereas a lot of countries have a unified system across a state, Australia for instance. Each state has its own refuse collection system and those are very, very big areas, a very wide number of communities, and they all have the same. That tends to happen on the Continent as well. But not in this country; it's always been pretty poor, the communication between Councils, even though the members get together quite often. It's not top priority to talk about refuse collection, so it's always left to the practitioners to do anything they did. It's quite informal.

LF: Let's get back to you – we're in the mid-1980s.

MW: By then I'd become a driver. That wasn't really my inspiration to go for the job, it wasn't to become a refuse collector, it was because they were so short of drivers when they brought the HGV regulations in. It was very difficult; there was huge amounts of competition for drivers in Luton. Apart from the

factories, there was loads of warehouses and so on that had drivers. The HGV regulations came in before I started, about 1970. Existing drivers had what they called 'grandfather rights'. They didn't have to take a test as long as they got their employer to sign up that they were drivers and they were competent drivers, they got their licences. Then anybody from that date onwards had to take a test, the full test, in the different classes of licence. Luton had its own training school attached to the transport division, and the deal was that if you stuck it out on the bins for six months, they put you through to do your test. That's more or less what happened. The irony was, once I'd gone and done it, passed my driving test first time, by then they'd got a surfeit of drivers. [Laughs]. They said to me, 'You're about number 14 on the spare list. Wouldn't you rather go back as a regular member of a crew? With your knowledge, we'll make you the charge hand on the crew.' It was a bit of extra money, so that's what I did, and I was good mates with the driver so we used to split the driving sometimes. I carried on doing that for about two years, and then a vacancy came up for a salvage collection driver, they used to take salvage: cardboard and packaging, and that sort of stuff. I did that for quite a while, and then the vacancy came up as a regular driver on a refuse round, and I did that until 1990, so I went through all the conversion thing.

LF: What do you mean?

MW: The conversion to wheeled bins. We started in 1985 with a trial round and there was a bit of resistance because it was a huge reduction in the number of refuse collectors, you literally halved the workforce.

LF: Was this because the capacity of the bins was greater?

MW: No, it was because wheeled bins were usually on every kerbside or on a premises boundary system, whereas when we were on the other bins it was a back door system. You had to go into the property, pick the bin up, take it out, empty it, trail it all the way back. Whereas with the wheeled bins they were out either right on the path or on the person's premise boundary, so you cut down the amount of time. There was a lot more in the bins, even though they were much easier. It was easier work, but still hard but it's not as hard as lifting bins. Of course, because it was on task and finish, you got people doing heroic things like carry four bins: one on the back, hook one through on the fingers on the front and they used to carry two with the handles. They used to do that up alleyways as well.

LF: 'Task and finish' means you don't work a fixed number of hours?

MW: No, you're given the amount of work you've got to do, that was from the work study thing, when they carry one bin. When they're doing it normally they carry two, three bins, even four bins some of the crews.

LF: What was the shortest amount of time someone could do their shift in and what would be the expected amount of time?

MW: They were supposed to work, when I started on the rounds, from seven until half past three. It was very unusual for anybody to go up to half past three. Generally, crews used to manage to finish about one, half past one o'clock. A lot of them used to pull work forward, do some of Friday's work on a Thursday so they could finish early on a Friday.

LF: Was that when the customers, the clients, would expect it to be done?

MW: Yes, they'd expect you to call around regularly. It was quite an issue if you were on wheeled bins, because they've got to put the bin out, but if you come in the back of their house, it doesn't really make any difference, as long as you do it regularly on the same day. Also, the fact that we used to get paid at three o'clock on a Thursday, so they thought, 'Well, might as well carry on and do a bit, until it's time to go to the depot and get paid.' Then they could finish about ten o'clock on a Friday.

LF: So do you think the employer was aware that people were doing it?

MW: Oh yes [laughs]. There seemed to be tolerance, as long as the customers weren't complaining. I used to get some people who got their pay, went out on the lash on a Thursday night, and didn't make it on a Friday, so some lucky spare carrier would get an easy day. On the other hand, there were some who used to regularly not turn in on a Thursday, but come in on a Friday and then they'd have an easy day and the poor sod who'd picked all the extra work up didn't get the job. As long as it wasn't pushed too far, management was prepared to tolerate it. But all that ended with the wheeled bins because people had to put their bins out so they had to know which day it was. And then, when you started to get to the complications of recycling and green waste and glass and you had to give people a calendar that all stopped.

LF: The introduction of wheeled bins meant fewer workers were needed for the job. How did the Unions deal with that?

MW: I became a Shop Steward in 1976 and the Senior Shop Steward for all the Transport and General Workers' Union (TGWU) workers, which was the drivers and the charge hands mostly. There was also the General, Municipal, Boilermakers and Allied Trades Union (GMBATU). It was a big reduction and there was a lot of resistance. It was a Conservative-controlled Council at the time, but the Conservative leader was actually okay, as far as we were concerned. He used to have some sympathy whereas a lot of his members didn't. [Laughs]. Extra bonus payments is how they did it. They wouldn't pay extra on the actual rate – they were set nationally and that was it – but bonus schemes were negotiable locally, so that was it. We did the deal and received quite a big pay rise. Certainly the drivers were extremely well paid, which I was one of, so that was a pretty legit self-interest perhaps.

LF: This was in the 1980s?

MW: Yes, this was mid-1980s. The whole of Luton was on wheeled bins by 1988. The Government had introduced an Act that said that all Councils had to put a select range of services out. It started in 1980 with the highways and some of the other services, but by 1988 that was extended into street cleansing, refuse collection, building cleaning, leisure centre management, a few other things as well. There was a statutory timetable as well, when named Councils had to put their services out to tender, so the day came in 1990 when the in-house team, we put our tender in. It was much more efficient, but we lost out to UK Waste. We weren't very enthusiastic about UK Waste, and pointed out to the Council that they were a lot of fly-by-nights, and that they'd lost accounts or contracts in other areas because they just didn't do the job. The Council we thought weren't going to take any notice, because we had a vested interest in keeping our jobs but they did and they actually put in a penalty clause that said that if they failed to perform they would have to pay the Council to put a service back, and it was a lot of money: £800,000, I think.

LF: Was that unusual, to include such a penalty clause?

MW: No, it wasn't. The Government didn't like it, but the Councils all got legal opinions, which said it's common in contractual negotiations between commercial companies. A lot of Councils did it. Anyway, UK Waste bitterly resented the idea that they'd have to take out a bond. They wouldn't do it. So we got to the final stages, I think they were due to take over at midnight one night, and the Council said: 'If we haven't heard anything by eight o'clock, you've

forfeited the contract.' And they didn't, so we had to start an emergency service the next day. By then I'd become an Officer, because I knew they wouldn't employ a Senior Shop Steward.

LF: Had the original plan been that the workforce would have been transferred to UK Waste, or whichever contractor was taking over the work?

MW: There was a lot of argument about the transfer of undertakings' regulations. The workforce had to apply for a job with UK Waste, and they could pick and choose who they had, and they chose not to employ an awful lot of the old workforce. Later on after the Government was threatened with action by the European Court they brought in the Transfer of Undertakings Protection of Employment (TUPE) regulations probably as they should have been, and they should have transferred the workers over.

LF: What was the emergency service that Luton delivered?

MW: Anybody that had been made redundant who didn't want to be made redundant could come back and start work immediately, which a lot of them did, obviously the younger ones who got hardly anything in redundancy pay. We found out who UK Waste were taking on and said to them: 'Do you fancy coming to work for us? Obviously you'll have to come and do an interview.' It was one of those interviews where if you had two arms and two legs, that was it, you were in. I actually got quite a good workforce out of that, we managed to retain a lot of the experienced refuse collectors and carried on the service.

LF: And you said you were an Officer by this time?

MW: It was pretty obvious to me that I was not going to get the job with UK Waste. I was a Senior Shop Steward, they weren't going to employ me. So I applied for redeployment. I was taken on as a quality assurance person, we were Quality Assurance Inspectors, and there were three of us, all Shop Stewards, who were taken on in that role but we never got to start work. We got moved back gradually from being client-side officers to being operational managers. There was an emergency period of nine months where they had to re-let the contracts. This time round, the Council won the contract, they were pretty tight terms and conditions, but they did win it. By that time I'd gone back totally to becoming a Client Officer.

LF: When you say the Council won the contract?

MW: The Council's in-house workforce was a DSO, direct service organization. All the people who were employed were actual Council employees even though they were sort of arm's length – all the restrictions that are applied under competitive tendering regulations. It was always part of the Council, but they used to report to a separate Committee, a direct Labour Committee and so on. We fulfilled all the obligations we had to do, made a rate of return, which was actually not a great deal of problem on the refuse. We'd cut ourselves pretty fine with the people who were doing it. Then I became a full-time Client Officer for about a year.

LF: And what did that mean? A Client Officer?

MW: You go and inspect the work, make sure they were doing what they were supposed to be doing. Anybody who left wasn't replaced, because it was an in-house thing, and it was another way of applying pressure other than financial penalties, you know. Then the Street Cleansing Manager left, and I applied for that job and became Street Cleansing Manager, and then the Refuse Collection Manager. By then it was still a DSO and they decided that they'd have a Senior Manager, a General Cleansing Manager who was responsible for the whole of the services, so refuse collection; bulk household waste; street cleansing; toilet cleaning. So I applied, and got it. There were a lot of changes then, a lot of recycling collection rounds and so on.

LF: Tell me about the shift towards recycling and clients doing their own sorting and how that developed.

MW: We set up a waste transfer station in the depot, because the local landfill site closed. We set up a materials recycling facility, so we could then start doing kerbside collections, this was early 1990s. We also looked around for alternative ways of recycling, driven by the Rio Summit, and the fact that the Government had introduced recycling targets, which weren't statutory but they were putting pressure on Councils to recycle more.

LF: When did the Government introduce those targets, do you remember?

MW: It was in a Green Paper, early 1990s. The Conservative Government introduced it. That was where the 25 per cent recycling rate came from. Then when the Landfill Directive came in, that became a statutory target to do the recycling and that really shook local authorities up. We used wheeled bins to collect people's rubbish, why not use wheel bins for recycling? Perhaps the mistake we made is, we went to 140-litre wheel bins, not realizing how popular

it would be, and how much more recycling we'd have to do. Now you'd use 240-litre wheeled bin instead of smaller ones – people in larger families could request the 240-litre ones, and a lot of people did, but the standard size was the 140-litre. Gradually, as sorts of materials came on board to be recycled and people could deal with them, then it started to be a capacity issue. One of the things we came up with was to say: 'Use your 140 as your waste bin and your 240 as a recycling bin.' We gave them all adhesive labels to put on so the refuse collectors were in no doubt about which bin was which. We thought a couple of thousand people will do that: the first year we had nearly 7,000 people turned over, and I think it's running at a lot more than that now.

LF: Why were your expectations so limited and why were they exceeded?

MW: Luton's never been a town where you can just go and say something and everybody will do it. There are places like that, you get 98 per cent participation rates. You don't get that in Luton. It's just the cultural variety, the fact that it's a very high density population, large families living in quite small properties. 120 languages are spoken in Luton, communicating with people is challenging. You've got to do it door-to-door really, and that's expensive.

LF: So, many more people were recycling than you expected?

MW: Yes. Our early attempts had given us perhaps the wrong message that people weren't going to participate in quite the numbers that we were hoping. Then, when we went over to wheeled bins, more people did. People had been inspired by the general recycling publicity. We always went for co-mingled collection of recyclables. We did try with one of the vehicles doing a source separated kerbside collection. We sent it around some areas of Luton and we got loads of complaints from motorists. If you go along the middle of the road with street parking on both sides nothing can get past the refuse truck. It took them ages to go along, bring the box out, start sorting it into the different compartments, even with crews of five or six carriers. We couldn't afford it. We decided it was a very nice idea, but it wasn't going to work in our area. We decided to go for one system within the Council and tried to stick to that, so we went for co-mingled. We got a MRF.

LF: So let's go back to your career. Where are you now?

MW: By then I was Cleansing General Manager. The other thing we did was introduce green waste collections, so a brown 240-litre bin for anybody who has a garden. I think about a quarter of the premises in Luton haven't got a

garden, so they're excluded, but there are plenty of places with gardens, so that's collected fortnightly. That took another big chunk out of the waste stream, and started pushing us up to about a 30 per cent recycling rate. Then the final bit of the jigsaw was we never had a system where we could collect glass with the dry recyclables. We had Public Service Agreement 2 (PSA 2) money from the Government to improve our dry recycling rates, so we couldn't include the green waste in that, we had to do it through packaging waste. The way we found to do it was to get a better collection system for the high-rise and medium-rise flats and introduce glass collection, a kerbside glass collection.

LF: Until then, glass had been excluded?

MW: Yes, we just used to have about 16 bottle banks: people had to take their own bottles to bottle banks.

LF: And if they didn't, they just put it in their general waste?

MW: In the general waste, yes, so there was a nice, heavy material there to be harvested. We gave them a 55-litre box, which proved to be well adequate for most people's glass, even during the summer when they're having barbeques and things, and parties, and at Christmas. Those measures got us to the target. The other thing we did was the Waste and Resources Action Programme. They were holding out some money to local authorities to introduce food waste collections, so we had a go at that as well. We got 90,000 properties in Luton, a fairly small proportion of the properties, but it was enough to do one round and make it worthwhile. They had a 7-litre kitchen caddy, so they kept that in the house, used biodegradable bin liners, and then they used to take those bin liners out, and we had a 20-litre collection container that went out with the wheeled bins. Our only real problem with the food waste was that we had to haul it up to a place north of Bedford, a good 40 mile round trip, and it wasn't really economic. We extended it to 10,000 properties because we had the capacity to do it, so we found that there was no reason not to try and harvest as much stuff as we could with just one round. But you'd either have to find a site where we could take the food waste which was much closer, or put it in with the green waste – the co-mingled green and food waste collections, which a lot of Councils do. But you've got to have a place where you can send it, and there was nowhere, so the Council actually stopped the collections. That's the only collection scheme they've actually stopped.

LF: What was the general response to that?

MW: It was very mixed. People thought that food waste is a bit icky and nasty, and then in other places where we thought, 'Ah, probably a bit marginal, maybe we'll get them,' they were really good, still participating right up till the end. The grand plan was to get together with one of our neighbouring authorities and have a plant somewhere where we could send the waste to be treated, unfortunately the Councils had fallen out over planning issues and it got nowhere, basically.

LF: Where was Luton with its targets at this stage?

MW: I think we topped 38 per cent, still collecting the waste weekly, we didn't go to fortnightly collections. The Council considered it, I don't know how many times. I don't know how many reports I wrote to the Council either. The problem with having weekly refuse collections is there's no driver to push people into using the recycling facilities. That's fairly apparent from all the research that's been done on alternate weekly collections. A lot of people will participate in the kerbside dry recycling collections, they got used to it. It's got embedded at 70 per cent, still 30 per cent of people who don't. Green waste, yes, that's a seasonal thing, but probably 60 per cent of people participate. The glass rounds, that starts to fall off a bit, about 40 per cent, and food waste, it was only ever about 30 per cent.

LF: So the incentive is to have less frequent collections and actively encourage people to recycle?

MW: The phrase they always use is 'collect frequently what you want and don't collect so often what you don't want'. The Council, the current Labour group, had made a commitment in their manifesto not to go to fortnightly collections so they felt that was quite a big inhibitor. Then they got a grant from the [Eric] Pickles fund of keeping weekly collections, so that burned that bridge I suppose, and they gave up any idea of doing that for the meanwhile.

LF: So where are we with Luton now?

MW: Luton at the moment, well they're facing Council elections in 2015. The Labour group is looking at what it is going to say about refuse collection. I think they might have gone for fortnightly collections if the Pickles' fund hadn't been there, in and I think they've lost 40 per cent of their local government grant. I don't want to get too political, but it does seem to be the leafy, luxurious, 'we don't really need the money', like Central Bedfordshire got more money, and the deprived, urban, tightly-packed multicultural area has got a hell of a lot

less. They are saying now if it does run out, that's it, we're going to fortnightly collections. It's just such a huge great saving, and it will push people to recycle more, which will save us all money in Landfill Tax and push up recycling.

LF: Let's go back to your career. Where are you now?

MW: [Laughs]. Where am I now? Well, yes, okay, Luton became a Unitary Authority in 1997 and took back everything including waste disposal, which maybe they were not too keen on. Landfill sites were closing at that time, one of the biggest in the country closed during that period: Brogborough landfill site. The WRG (Waste Recycling Group) ran the site at Brogborough, which used to take two million tonnes of waste a year, one of the biggest sites in the country, it used to take a lot of London's waste, but it just came to the end of its planning consent. We could see that was the way it was going, we would be pushed inevitably towards some form of waste treatment eventually, sooner or later. On that basis they said, 'We'll need somebody to drive that whole process, so we'll need a Head of Waste Management.'

So, in 1996, they started a recruitment campaign, and I applied and became Head of Waste Management, a full head of service. I still reported to a Director, of course, but that was it; waste was my empire. [Laughs]. I found it a fascinating job, I've always been interested in waste management, of course, I've been at it a long while, but actually having that sort of level of job, where you could go and look at and see everything, what I used to get involved in was quite a revelation really. It became almost like a regional job because it gave you a seat at things like the Lead Officers' Management Group, which was where the Counties and the unitaries all came together on a regional basis and made decisions, initiated research, looked at market development strategies and things like that, which we certainly wouldn't have done if we were just little Luton sitting on our own. Then there were really big-scale schemes that the Government was encouraging Councils to look at, so even while Bedfordshire was still there, they were doing a very large treatment scheme for the whole of the County. That was the idea, a £1.3 billion project, and so we got involved in that. Well, there had obviously been quite a bit of experience from doing a Private Finance Initiative scheme with WRG for our own waste. It was really a design, build, and finance scheme. There's no difference between the two in terms of what you have to do, hurdles you have to jump through and so on. They decided to do that, and we started that whole thing again of having financial advisors, legal advisors, technical advisors, went down that road and came up with a site, and really we were quite well underway and then there was a huge great spike in the cost, and the

Councillors in Bedford were getting very cold feet about it. So they withdrew, and that was the end of it, because we couldn't really support it. Yes, it was a fascinating job, I was sorry to give it up, but it was mostly ill health. I was 60 anyway, and I was still in that group who could retire when they were 60, so I did. I don't think I've really regretted it, because that's when it started to go downhill as regards to local government finance. Recycling performance has plateaued now, in fact it's gone backwards, it's down to about 33 per cent now.

LF: Is that because of a lack of investment in promoting it?

MW: Yes, not investing in promotion. People used to go around door knocking, that's what they did. We had about six of them. That's all gone, went in the cuts. No real way now of carrying out communication and education: very limited resources. We had a recycling bus we put together, got the money for that, put that scheme in place. That was run by three people who used to go around all the schools, community centres, and events. That went by-the-by, just couldn't afford to have anyone do it anymore. It's all been a bit sad. And there was a recycling enforcement team as well which used to go around, so we had a lot of persuaders and then a heavy mob.

LF: What did the heavy mob do?

MW: They used to enforce the Environmental Protection Act so with: 'This is it, this is what you're supposed to be doing, if you carry on putting rubbish in your green waste bin, we're going to start taking action against you.' The bin police.

LF: How about commercial premises throughout this period, both construction waste and perhaps food waste from restaurants?

MW: As part of the food waste thing, there were some people who volunteered. Pizza Hut seemed to have a quite keen corporate policy to participate in food waste schemes if the local authority was running them. We used to do collections from them, schools – had no problem persuading them – always seemed to be very keen. They used to use that as part of their curriculum to show the kids what they were up to through waste, and some of them went a lot further than that and had wormeries and things like that. Commercial waste recycling, yes we brought it in, we've got a MRF, so there's no reason why we couldn't take it in. One of the trade waste vehicles does trade waste collections three days a week,

and on the other two goes around and does recycling collections, and obviously we have to take that out of our figures, which we are most scrupulously careful to do because it's not household waste.

LF: If you had to name the one significant change you've seen over your long career, what would it be?

MW: The most significant change? I think there are too many. It's probably down to about five. Well, the vehicles. They were a ragbag of vehicles when I started in 1974. Some of them were ancient, some of them were ten to 12 years old by the time we got to them. Alright, they were spare vehicles, they weren't in regular use but they were wrecks. A lot of Councils learnt that you just can't do that. You have to maintain a regular system, tell people when you are going to come round. If you've got a fleet of vehicles it persuaded a lot of Councils to go for regular replacements, or to get into deals with manufacturers so they let a contract not just for one vehicle or two, but for the whole fleet to be replaced over a period of time. That way you get the top spec, top of the range vehicles. I think a lot of Councils did that. Whether that's still the case with the cutbacks I don't know, but they were a lot different. So the vehicles changed totally, the compression you could get with them and the capacity those vehicles have got, it's a different world. That was the first big change.

The second one was the wheeled bins, changing it from a very manual occupation to probably a less manual occupation; still hard work but not so many sprains and injuries and back injuries. And task and finish came to an end. I think that wasn't a very safe system of work. Officially it finished in Luton when they lost the second refuse collection contract, which was in 1998. Recycling, of course, that's a huge change, the amount of waste you get. And, after that, waste treatment must be one of the biggest changes. Truck and dump has gone out the window.

LF: So when you started it really was landfill.

MW: Landfill was the only option I don't know of any local authority in our area who sent their waste for treatment; it all went to landfill. Perhaps we're particularly gifted in Bedfordshire with huge great holes in the ground. But the big revolution was source separating and co-mingle collection recyclables. How many is that, four? What's the fifth one? There must be a fifth one. Landfill Directive, I suppose, the pressure. That's reaching our recycling target, it's the Landfill Tax that made a huge difference: £80 a tonne it is now.

LF: Remind me how the taxation works? Does it act as a disincentive to dump a large amount or is it the frequency?

MW: Any amount really. The way it was introduced was to encourage local authorities to divert more of their waste stream. It came in at £7 a tonne during the Conservative era. It gradually went up a bit and then it got on the escalators so it was really going up a lot. Then it went up to £80, it was going up £80 a tonne. We're not going to know what happens after this year, because this was supposed to be the final big increase to £80 a tonne. The feeling is it will probably go up by the rate of inflation now, so it will be a much lower rate, but it will still go up. So for every tonne of waste you take to a landfill site it goes over the weigh bridge, they've all got weigh bridges now because it's a tonnage based thing. Every time you take landfill, you pay that tax on it. It's recharged from the provider of the site back through Customs and Excise, because it's a huge sum of money, they watch it very carefully. There are still two rates of tax, lower and upper rate. The upper rate is the biodegradable stuff so real waste, household waste, commercial waste. Anything that's got a biodegradable fraction in it is lower rate, which I think hardly anybody uses anymore because they try and divert it away from that. That's for inert material, rubble, things like that, that's £2.50 a tonne. It hasn't gone up for a long while, but it's become a bit academic really.

LF: Mick, looking back at your very long and very fruitful career, is there anything you'd have done differently?

MW: Probably become an Officer sooner than I did. I was probably quite good at it, if I say so myself [laughs] and should have probably done that quicker, but I was trying to pursue other things, including a career in politics. I stood as a prospective parliamentary candidate in Luton North in the 1987 general election but I could have done it before then if I'd been prepared to move to another constituency, I probably could have because I was so involved with the Union. They were pretty keen to try and get people who were as working class as I was to go for it, and they were talking about places like Birmingham to do it. I was a County Councillor for eight years on Bedfordshire County Council, 1981 to 1989, which didn't do my knowledge of waste management any harm because I was Chair of the Environmental Services Committee for about six years out of the eight. Once I'd left that I decided I was going to become an Officer, and that's when it happened in 1990 which was probably a bit more of a coincidence with things that were going on at the time. I probably should have just gone a bit earlier with that.

LF: What were the best times and what were the worst times in the industry for you?

MW: The best times were when we were putting schemes in, and really seeing an improvement in waste diversion performance and doing something and actually getting it done. There is a fantastic amount of built-in inertia in local authorities, and to be able to overcome that and get them to do something and carry on with it, and see it through and see some good results from it, has been very gratifying. That must have been about the best and probably now, from what my colleagues say, is probably about the worst. They're really officiating over a series of huge reductions in both the scope and ability of local authorities to deal with all the issues they've got to deal with. That must be very bad, and I'm probably very fortunate that I got out just before that happened.

LF: And looking forward, looking globally at the whole development of the industry over the next ten to 20 years, 50 years even, given the predicted massive increase in population, what shape do you think things might take?

MW: Treatment has got to be the way forward, whether it's the energy-from-waste facilities we've got at the moment, or to going down the way the Germans have gone and have waste-fired power stations, places that are burning two million tonnes of waste a year, you know, in order to overcome their energy problems. As much as anything else, to generate gas and electricity from that might be the way. You've got to get much more public acceptance about the issues: the way waste has been managed in the past is not going to be the way it's managed in the future. It's going to be much more of the step change we've seen from just 'truck and dump' to recycling and treating energy waste as a resource.

LF: One of the things you're doing now that you're retired is writing a history of waste in Luton. Tell me about that.

MW: It started off just me writing about my own experiences and then consulting the waste historians, which surprised me how many of them there are [laughs]. They said, 'No, no, no, you've got to start at the beginning: When did the waste thing start to change in Luton?' I found out it was really when Luton established a local public health board in 1850, and the links then between public health and waste management couldn't have been clearer. It was on the back of the terrible cholera epidemics, typhoid epidemics that took place in Luton. The big impact came when Luton became a Corporation Borough Council in 1876 and really started to make a lot of changes to the way it operated, both its street cleansing and refuse collection activities. I've had to do all the stuff that was

before my time, pre-1975, so it's all had to be academic research really. There was very little record of living memory as well, very few people around who remember anything of that, although, again, I can call on my memories of people who were working when I started, who could remember that or knew the people who were working when it was horse and carts that used to go out on the refuse. Some things have come forward as a result of that as well, and a lot of information, and I've got a quite healthy archive on it all now. I was hoping to get it finished by the end of this year, but I keep going back to it and adding something else, or finding something else out. There are still a few gaps there that need to be filled, but I'm gradually getting there. I'm intending to publish it online, that's the way most people seem to print these things now. I've been offered assistance from Luton library reference service to help me do it. I must admit, some of the technical challenges can be quite daunting for somebody with my low information and communication technology (ICT) skills. There are a lot of photos to put in it, a lot of articles from newspapers and so on, and so I'm probably going to need some assistance to do that. I'm certainly getting a lot of nagging about 'When am I going to finish it?', so the pressure's on now.

LF: Mick, it's been a real pleasure talking to you. Thank you very much indeed.

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