

The Royal College of Physicians and Oxford Brookes University
Medical Sciences Video Archive MSVA 60

**Lord Dainton of Hallam Moors Kt FRS in interview with Lord Walton
Oxford, May 1991**

Part One

JW Lord Dainton, as you know, the purpose underlying this series of videotape recordings is to build up an archive at the Royal College of Physicians, of people who have made distinguished contributions to science and medicine. Now of course you're not a doctor but you've been so much involved in many ways with medicine over the years that we regard, all of us regard you as an honorary physician. So what I'd like to do if I may is to make this a completely informal occasion. And so, if I may, having known you for a long time, I'm going to call you Fred.

FD Splendid! Splendid!

JW So Fred, if you would I'd like you to begin by telling us something about your early childhood and schooling.

FD Well, I was born and bred in Sheffield. A house that still exists – one of those small terraced houses, you know, two-up, two-down, with a scullery. And I, in my early days I can remember we had no water closet. I can remember that coming in. We had gas lighting downstairs but nothing upstairs, so we went to bed with a candle and all that sort of thing. Fridays were very memorable. I'm giving you this, I hope it's of interest...

JW Absolutely, absolutely.

FD ...to give you some kind of idea of one's background. Friday was bath night. Then a fire was lit under the copper as it was called, which was in fact a large basin which was heated by a fire to produce hot water, and then put in the bath and so on. Monday it was lit again of course because that was washday. And that culminated in, first of all the mangle being operated, and finally, if it was wet weather of course a clothes-horse around the old Yorkshire range. And I can remember great dampness. But all that sounds terrible. It wasn't that kind of family at all. It was an extremely closely-knit family, though I didn't see all of it because I was the last of nine children, and by that ... and I was born when my father was 58 so I was really I think almost the last straw for his patience!

JW I see! Well, tell me about your father and mother.

FD Well, my father was really quite a remarkable man, and an interesting thing that's happened is that ... in a sense he's come back to life this year in a way in which I'll tell you. But he was born in 1857, which was the year of the Indian Mutiny, and of a very poor family of which we're trying to trace his origins. I know his father was a mariner and he was in Liverpool. There wasn't enough money for him to go to

school except for more than a few weeks, and consequently he never learnt to read. Now that sounds like a terrible handicap, and I'm sure it was to him, and how he overcame it in the work which he subsequently did I don't really know. But for us it was a very good thing. Because he was a man of natural intelligence. He wanted to know about all sorts of things; the paper had to be read to him, and books he got, wanted to be read to him. And I in fact ... my task was to go to the local public library and ... to borrow(?) and get books out according to his instructions, which in my case was Stephenson, Scott and Kipling. We'd learn ... that wasn't just reading indefinitely but he would stop, I don't know, every second, third, fourth, fifth paragraph and say 'Eh lad! Now I want to talk about this.' And so it was an education of a really quite unrivalled kind. And the great thing about it was that I had no fear of libraries. They were friends. I went in. My mother on the other hand, she came from a little village in Warwickshire, it's in fact called Watford; it's where Watford Gap is, you know, on the M1. And that, she was ... the cottage where she was brought up is still there, and she like any country girl left school early and went into service. And she was, I can remember her descriptions of mending the socks of the boys at Overslade School(?) near Rugby, which was a prep school for Rugby School. And again one of the interesting things was, you see, I mean her behaviour ... when I came up to Oxford and was worried about her coming up to have lunch with me when my father had died and I was an undergraduate and so forth... And you know how sensitive working-class people can be that they're behaving properly... I was really quite ashamed of myself that I had any doubts about my mother, because having been in service she knew how to behave better than the gentry! And so she treated my scout very well indeed, I mean just as he should have been treated. And he didn't know anything of her background, and I think she might have been a grand lady for all he was concerned!

JW Your father I understand was a considerable craftsman, wasn't he?

FD Yes. Well he ... when he ... his first job was sort of odd jobs, and in fact he was working for a doctor as a kind of horse valet – just combed the horse, you know, and then came in, and then later drove it. And he had a room over the stable, and so he told me, it was there that he became fascinated with masonry. And that became his life's work. And he was very good at it. In fact, you know if you're interested I can tell you about this year.

JW I thought you once told me that he'd built a part of the tower in the top of the Sheffield town hall? Or was that...?

FD Oh, he did. He was the, he was the master mason on what is called the New Town Hall in Sheffield, which was built in 1897 to replace the old one which still stands on another site. And also again on the extension to it of 19 ... well, it began in 1919 and was finished in '23. As a matter of fact I can remember the opening of that because I was ... he had a special place for my, his wife and me and I was on his shoulders when the actual opening took place. It was George V. And that's, you know, an early fuzzy recollection of childhood.

JW Of course. Of course, of course. Now what about your schooling? Because I'm sure that everyone would be interested to know when it was at school that you really became conscious that you were going to become a scientist.

FD It's very difficult to tell. I was lucky. In Sheffield at that time there was a school, a central secondary school; one of I think only three or four secondary schools in the whole of the city serving half a million population. And one then had the 11+ examination as it became known – it was known by us as the scholarship examination – for a free place at this school. And I was lucky to get in there when I was 10. And it was a marvellous school because it was one of the very early higher grade elementary schools founded after the Forster Education Act of 1870, and the citizens of Sheffield wanted it to teach science. Now, the educational reformers didn't think science was a suitable subject for elementary schools and there was a great legal battle, settled by Judge Casperton(?) I remember, which enabled it to teach science if it would become a secondary school. And for that purpose they built an extremely fine science school adjacent to and connected by corridors with the main school. And the great thing about it was they built it with an eye to the future in the sense that you could also take external London degrees there at night school. So it was equipped with three-tiered lecture theatres, marvellous laboratories, three large chemistry laboratories, one big biology lab, another ... a geology lab, two physics labs, and a machine drawing room. And what was best of all really were workshops – wood and metal – so that we made equipment. And really the quality of the staff there suddenly fired me off. And they were most imaginative. You'll have heard I'm sure of cysteine; it's a very important biological material. And I can remember the chemistry master who said to me on one occasion 'Now, we've got this cysteine. You can get it out of hair. Would you like to make some?' I said 'Yes.' I didn't really know quite what it was, you know. And he said 'Well, the first thing you must do is go round barbers' shops collecting all the hair clippings from the floor', you see! So I did this, which was a form of(?) liberal education, and extracted a tiny amount of this, and I felt really chuffed with myself of course.

JW Your first piece of research?

FD Well, I was just copying what others were doing.

JW Of course. Yes, indeed.

FD But you asked how I became a scientist. Well, partly it was the ambience of the school. Partly it was that we had a very bad chemistry master who came in, named Percy Lord, who demonstrated to me unequivocally as I think later in life that a little chemistry can carry you a long way, because he became Sir Percy Lord, director of education for Lancashire. And as a Yorkshireman I thought that's what Lancashire deserved, you see!

JW But he wasn't a good teacher.

FD No. And I'll tell you how he ... I came to be a chemist in that way, because what happened was... Whereas the previous senior chemistry master was marvellous; if he didn't know anything he would say 'Well, I don't know but let's find out together.' And we had a very good library so we started there, and if you couldn't get it there he would make other enquiries. But I remember Percy Lord used to ... I think the only verb I can use, used to try and flannel and evade the issue and put me off, and I didn't like that. So knowing about libraries, I walked about two minutes away to

Surrey Street where the new public reference library was, and of course had no fear in going in there. And it was there that I found two books which I remember very clearly, one by Nevil Vincent Sidgwick, Fellow of Lincoln College Oxford, on the electronic valency,¹ which totally transformed inorganic chemistry from rote learning to some sense. And the other by CN Hinshelwood, one of my predecessors in Dr Lee's chair but of course I didn't know it at the time, who wrote a beautiful book on reaction kinetics,² which was later to become my interest. And I thought... I had no idea about Oxford, none at all. And I thought 'Well I'd like to go to Oxford and study chemistry.'

JW I see. So what ... it's interesting, because surely there cannot have been too many people from your school at that particular time going to Oxford. Or were there?

FD Not many at Oxford. Those who went to university tended to go locally of course to Sheffield.

JW Of course. And in my day that happened too, yes.

FD That happened too. But there was quite a tradition for going to Cambridge, partly because one of the great headmasters had been a Cambridge man, though the headmaster in my day, Dr Moore(?), was London, and... But the easiest thing to do was to stay at home and... And I can remember the scholarship examination so clearly because coming from Sheffield, which was really an extremely dirty town – I mean I didn't know it was dirty, that was the normal state of affairs for me – and coming up for the schol exam, I was absolutely overwhelmed by the beauty of Oxford. And so much so as a matter of fact.... And by the absurdity of the arrangements, I mean I'd never been, taken examinations where we were [not] invigilated. And we did them in University College Hall, starting at 9.30 am, and coffee was brought at 11, you know! Tea in the afternoon! Well, there was a paper, the advanced mathematics, which I should have taken I remember on the Saturday. I never thought you'd have exams on Saturday and I thought I'd have a bit of Saturday looking around because ... well, the Nations Craft(?) was there, you see, and... And I missed it, and I can remember coming home feeling, you know, it must have cost a lot of money to do this.

JW Oh, you missed the paper?

FD I missed the paper, yes.

JW I see. Right.

FD And I was in deepest gloom; I didn't know whether I dare tell my mother. Of course I did. And I'd written everything off. And then in ten days there came a telegram saying 'You've got an exhibition.' And it must have shown a great degree of ... how shall I say?

JW Flexibility?

¹ Nevil Vincent Sidgwick *The Electronic Theory of Valency*, Oxford: Clarendon Press, 1927.

² CN Hinshelwood, *The Kinetics of Chemical Change*, Oxford: The Clarendon Press, 1926.

FD Flexibility, yes.

JW On the part of the...? Yes, indeed. It's interesting that you should have been inspired by those works. I remember, in my young days at school, being inspired by ... was it Lancelot Hogben, the *Mathematics*...?

FD Oh yes, *for the million*.³ Yes.

JW And *Science for the Citizen*.⁴

FD Yes, indeed.

JW Those books.

FD Which I also read.

JW Yes. Very interesting. Why did you choose, interestingly, St John's? I mean, how did you...?

FD I didn't...

JW ...pick that out?

FD I didn't know what to choose to tell you the truth. I had two school friends who were ahead of me, one at Corpus and one at Christ Church, reading chemistry. And the one at Christ Church was very keen that I should go there. I didn't know how to pick them out. But as it turned out I was picked out by a man named, as he later became Sir Harold Thompson, who was from Sheffield himself and went to school ... King Edward's⁵. Whether there was anything in that connection that he knew about at the time I really don't know. But he turned out for me to be a very good tutor. Absolutely right. He was a bit brutal, and he annoyed me intensely in the first fortnight, and I was determined to beat him! And it cost me the fact that in my innocence I had joined for example the Boat Club, and I soon found that I had to resign from it if I was going to do work to his satisfaction and not be put down by him.

JW I see. Really? Really?

FD And from then on he was very good.

JW Right. So you had a wonderful three years in Oxford. I suppose...

FD Well four...

JW Four years, of course.

FD ...because you had to do a year's research in chemistry.

³ Lancelot Hogben, *Mathematics for the Million*, London: Allen & Unwin, 1936.

⁴ Lancelot Hogben, *Science for the Citizen*, London; Allen & Unwin, 1938.

⁵ King Edward VII School, Sheffield.

JW In those days.

FD Mmm.

JW Right. Now you have had a relationship with a very large number of colleges in Oxford and Cambridge throughout your time. At the end of your time in Oxford you went to Sidney Sussex in Cambridge.

FD Well, that was...

JW How did that come about?

FD Curious accident, really! I enjoyed Oxford marvellously; it was absolutely splendid. It was four years of heaven, paradise, there. I'd never had that kind of freedom, I'd never been amongst such people. It was ... I didn't stop and think about it consciously, I just enjoyed it. And then in 1937 I got a First, which I was very pleased about. But I was beginning to be quite clear I had to go somewhere else. I could have stayed on. There were a couple of DSIR – Department of Scientific and Industrial Research – awards for chemistry, and I'd been told actually by Sidgwick that I could have one, and my tutor Thompson would like me to stay on. But I wanted to get away. I'm not quite sure what it was within me; I didn't know how to articulate it exactly. But I just felt I needed a new experience on my own where I could test myself. Anywhere, you know. But I ... I had been offered a job in ICI, and I didn't quite like that prospect. Again I don't know quite why, except I was rather hipped on research. And so a bit at a loss, I nevertheless decided no I wouldn't stay on, which meant that Tommy my tutor – Thompson, who was always known as Tommy – sent me to see the president who was a bit of a stuffed shirt, Sir Cyril Norwood, he'd been headmaster of Harrow. And I can remember that interview very clearly, because he couldn't understand why I wouldn't stay on. And I didn't know how to put it, and I quoted a bit of Shakespeare to him, and I can remember the look on his face...

JW Which bit, do you remember?

FD Oh yes! Because again at this remarkable school I was at I was, believe it or not, secretary of the Shakespeare Society which got national renown. We were invited to put a wreath on Shakespeare's statue at Stratford, every year, because of this ... the outstanding performances. So I was introduced to Shakespeare and had read a lot, and I... There was a phrase that always stuck in my mind from *Two Gentlemen of Verona* ... Act I Scene I, when one brother says to the other 'Home-keeping youth hath ever homely wits ... I do entreat you my dear brother, go seek the wonders of the world abroad'. And it's very good advice. And so I, you know, I put that to him, and I can remember the look on his face. I don't know how to interpret it! A bit of shock that a chemist should do this. A feeling that the argument was conclusive, I suspect. And he seemed to give up. And then it was a short time later that I got a letter from the Reverend Canon Weekes⁶, master of Sidney Sussex College Cambridge to which St John's had become linked some months earlier.

JW Ah! Not with St John's Cambridge, surprisingly.

⁶ Reverend George Arthur Weekes.

FD Not with St John's Cambridge, no. And I don't know why. And oddly enough ... because St John's Oxford was royalist, and Sidney Sussex of course was Cromwell's ... college. But there was no money. And then two things happened. Professor Norrish with whom I did my PhD got some money from ICI. And the Goldsmiths' Company also wrote to me and said could they help. And so I had enough.

JW So you went really to do a, to do a...

FD A PhD.

JW A PhD in Cambridge, and in Sidney Sussex.

FD Yes.

JW Going back for one moment, just to one or two things you said before. You talked about money. Did your scholarship or exhibition to St John's cover the whole of your...?

FD No.

JW No. So your parents had to give you some support, did they?

FD Well they couldn't...

JW They couldn't?

FD ...because there was only one...

JW I was going to ask you...

FD ...there was only my mother.

JW Oh, only your mother, yes.

FD Yes.

JW She was very supportive of you coming to Oxford?

FD Oh, extremely so. I mean, for her ... it was a real movement – she would never have articulated it this way – from one class to another.

JW I understand.

FD It was a release.

JW Had any of your other, elder brothers and sisters gone to university?

FD Well, the next brother up, who was nine and a half years older than I, left school at 14 but did his matric via night school then went on to Sheffield University and did a degree by night school in metallurgy. And then after that he did a modern language, so that he could represent Vickers in Belgium and so on. And then of course came the crash, and he was out of a job and so on. So that was the only one who had a university education. But I had a sister who became a teacher. And they were all ... they all got something to them.

JW Right. Coming back then to St John's you had to find money from other sources to keep you going...

FD Yes.

JW ...even throughout your undergraduate career.

FD Well I didn't find it; it was put in front of me in a way.

JW It was, yes.

FD What happened was I had £80 a year on the exhibition, and £40 from the City of Sheffield, a grant, and £40 loan on which I had to take out an insurance policy in the event of my death that they get their money back, you see! The ... the premium for that was £10-7-11½d; it was an endowment policy. So to make the sum, you see, I had ready cash, something rather less than whatever it was ... £160/170 a year. And I discovered when I got up there that you needed £230. And this was spotted by a curious route in that the senior tutor – the man who later became president of St John's – kept a list of people whose college bills were low in the kitchen and sent for me and said 'Your battels are very low.' I was really astonished by this. I didn't think it was any of his business! I can't remember what I said. I may even have given the impression that it was not his business! And it was just his way of finding out how I was eating. And I was in fact eating, as you can imagine, by sort of corn flakes and milk. And two things happened then. First of all, very quietly, the College decided to give me an extra £10 a term from the fund, no questions asked. And they helped me with books and things. But he also said I should put in for some Goldsmiths' Company exhibitions, which were by examination.

JW So that's how you started your association with the Goldsmiths'.

FD Yes.

JW We'll come back to that later. The other thing you raised was you said you began to be interested in research. Which particular branch of chemistry really fired your imagination at that time?

FD Well, the chap who really fired me oddly enough was a man with whom I'd never worked. A great man. And a subject I had never touched. Professor, as he became, Sir Robert Robinson; he was president of the Royal Society later, Nobel Laureate.⁷ A chap who came from Chesterfield and went to Manchester University,

⁷ Sir Robert Robertson was awarded the 1947 Nobel Prize in Chemistry 'for his investigations on plant products of biological importance, especially the alkaloids.'

and I think most people would say the greatest organic chemist of the 20th century, at least English and probably in the world. And he was very remarkable. And I first met him because I used to play chess a bit and he was county chess champion. And then he gave lectures in the second year, and my tutor Tommy said 'Well...' – in my first year – 'Why don't you go to his lectures?' Which I did, and I was absolutely fascinated. And I wanted to work with him. But my tutor said 'No, you'll do your part two with me,' and I hadn't got ... well, my life would have been quite different, no doubt. But Tommy was a good part two supervisor. And what happened then was very interesting, because it's only about ten years ago that another Nobel Laureate, Sir Derek Barton⁸, who is a bit younger than I am, sent me a letter saying he'd written about the Barton Reaction, which every chemist knows, you see. He said 'Look at reference number so and so, where it all began. No good work is ever wasted.' This was to the *Transactions of the Faraday Society* in 1937, Thompson and Dainton, which is my part two work.⁹ And I had no idea that it had led to this. And that was a very interesting lesson.

JW How interesting.

FD But I became a physical chemist by accident, you see, in those terms.

JW I see. Well, so often it's a matter of serendipity.

FD Yes.

JW When you went to Sidney Sussex then to do your PhD what was the topic upon which you were...?

FD Well I worked on explosions actually, on the combustion of hydrogen and oxygen, a very very old friend. And one of the reasons for doing this was that ... with ICI putting up some money, they used to make explosives for mine shots – you will know all about that coming from Newcastle. And what was done then was to put in the explosive in a bore hole and fire it off. Now, an explosive is a nitro compound of some kind, and that put in, when it fired it put nitrogen dioxide into the atmosphere. The effect of that was to lower the ignition temperature of methane by about 200° and make it much more explodable. So it was a very dangerous procedure. And the way in which they tried to stop that was to pack it behind with stone dust; a very well-known procedure. But ICI was interested in the study of what is called the 'sensitised' (?) by nitrogen dioxide, explosion of hydrogen and oxygen, and methane and oxygen and so forth, and I started work on that. Oddly enough, Hinshelwood here had done work on it, and Thompson. So I soon found myself repeating their work. And that introduced me to what's called 'reaction kinetics' – the rate at which chemical reactions go and why. And that's been really my life's work.

JW That's been your life's work.

FD Mmm.

⁸ Sir Derek Barton was awarded the 1969 Nobel Prize in Chemistry with Odd Hassel 'for their contributions to the development of the concept of conformation and its application in chemistry.'

⁹ HW Thompson and FS Dainton, 'The Photochemistry of Alkyl Nitrites. III', *Transactions of the Faraday Society*, 33 (1937), 1546-55.

JW Now after Sidney Sussex, you became ultimately a fellow of St Catharine's at Cambridge.

FD Oh yes.

JW How did that come about?

FD Another accident, really! One of the advantages of the Oxford chemistry school, and also one of its disadvantages, is that you did nothing but chemistry from the word go apart from qualifying in German. Well actually I did some physics just for the fun of it, because my tutor suggested it. But when I went to Cambridge I found that I knew so much more than the Cambridge people of chemistry, because they'd had two years carrying three or four subjects together, and then they had to specialise within chemistry. So very often two-thirds of the chemistry as I knew it was unknown territory to the Cambridge graduates. So I was very much in demand for teaching. And I also took with me what I ... not new to me but which I'd learned here, which was essay writing, whereas the Cambridge form of personal instruction, supervisions, was largely a Tripos question and answering if it was anything. And I didn't like that because I wanted people to be able to take a theme, write about it and so on, and read. And I ... when I say I had great success, you mustn't misunderstand me. It's the students who have the success. But I was able to help them. And I think if you talk to any of them whom I had they found this really a very good method, and a helpful method to them.

JW So the news got around?

FD The news got around. I did some St Catharine's supervisions. I did them for various colleges. And then, I think it was about 1944, I was pre-elected to that ... I had already been appointed a university demonstrator under ... about 1940 I think it was, which was a non-tenured university post. And then to my surprise I was offered the Humphrey Owen Jones lectureship, which was the only named lectureship in physical chemistry. I mean it was a new subject in a sense. And so I was extremely lucky. Extremely lucky. But, and I had a very funny thing. My ... Professor Norrish was a very awkward man in many ways, very awkward indeed! That I lasted 13 years with him, with a break during the War, is incredible to me; I mean, I don't know how ... because many other people did not. But when I was appointed Humphrey Owen Jones lecturer, I must have the letter at home somewhere, it was an extraordinary letter saying 'Congratulations on the appointment. Secondly, I want it clearly understood that you work on no field in which I am interested.'

JW I see!

FD Well, I was enormously irritated by this.

JW Of course. I can understand!

FD But on reflection after many years I wonder what his motives were. They could be so easily interpreted as 'Keep out. Keep out, this is my field.' But in fact

they were the making of me because I had to look round for other things which became characteristically my own.

JW Ideas of your own. Indeed.

FD So it was a help to me actually, in the long run.

JW What is a praelector, or a praelector in Cambridge?

FD Oh. What in Oxford you'd call 'dean of degrees'.

JW Oh I see, yes.

FD You had to be responsible for all the entries into examinations, for all the undergraduates in your college, all the postgraduates. You had to present them for degrees; you had to make sure that things were done in the proper order and so on. And it also was quite interesting because it meant you had close links with them. And when they graduated I used to give a little party with sherry for them and their parents, you see, beforehand and explain it all to them. So it was very nice.

JW Good training for your subsequent chancellorship in Sheffield, no doubt!

FD Well, yes, although...

JW Latin ceremonial!

FD In Sheffield it's done in English, thank God! There it was done in Latin. Now that's an interesting point, if I could comment on it.

JW Yes, please.

FD Well I had no Latin at school.

JW Oh I see, yes.

FD So when I got this exhibition at St John's, the next thing that happened was the senior tutor said to me 'Well, you'll have to take Latin for responsions.' Because in those days you had to get Latin; you had to do an unseen and a translation. And I knew none. And so I dropped tools in chemistry and physics and mathematics and started teaching myself Latin, with a little guidance from the one Latin master we had at school, and greatly enjoyed it. But if I hadn't done that I couldn't have been praelector and got an extra £50 a year!

JW But of course when you hear certain deans of degrees in Oxford you often wonder whether they learnt Latin in their...

FD That's right.

JW ...in their youth.

FD That's right.

JW We certainly did in school. It was one of the, one of the...

FD Well, I greatly enjoyed it actually. I think it's not a bad idea to do it late in life, if 18 is late!

JW Now you mentioned that your association was interrupted though during the war.

FD Yes.

JW You yourself, your career was not interrupted? Or was it significantly interrupted by the war?

FD Oh, in research terms it was totally demolished.

JW It was?

FD Well I went off to the Royal Aircraft Establishment in June 1939, you see. I then walked out of it in November 1939 because of a number of extremely frustrating things that happened. I mean, if you can imagine it the first job I was given was to mix black paint in a bucket, to be painted on the underside of Wellington bombers, to prevent them being so easily detected by searchlights. And we all knew that the Germans were working on radar.

JW Of course.

FD So I got fed up with that. And then I was given another daft job. And the final straw was that I was asked to produce a magic chemical to be put inside the cylinders containing hydrogen which were used to fill the barrage balloons, so that when fired up by German incendiary bullets from aircraft they would not inflame. Well, my research was on the combustion of hydrogen and oxygen, and I said 'It cannot be done.' But no, they weren't satisfied. So with a new research student who had come to Cambridge that summer – well he was a Cambridge man, PG Ashmore, a life-long friend of mine, godfather to my children and I to his – we demonstrated very quickly that this was not possible, to their satisfaction. And I really thought – by this time the war had broken out – this was ridiculous. So I quit and went back to Cambridge and taught until in May of 1940 things really opened up and then I was sent for by the regional commissioner. I remember a very odd conversation. He said 'There are a lot of underground dumps of petrol in East Anglia. If the Germans invade across there ... there must be again a magic chemical' – this was the attitude of non-scientists, you see – 'that you can have in a bottle and you can pop into a million gallons of petrol, and it will make it unusable if the Germans find it.' So with Sandy Ashmore as we called him ... he and I had a car I remember, an old Austin 16, and went round at a time when road blocks were manned by armed policemen and so on and filtering out petrol, pumping it, siphoning it from the tank and putting in additives and so on. Actually we found something. And it wasn't until about ten years ago that I found that another man, Alexander King of Imperial College, had been given the same task for the London region and found something else. And that was that. And then things

really started to move. I did all kinds of work then for various government bodies; smoke mixtures, pyrotechnics, incendiaries, fuses, trying to save aircraft from spontaneously inflaming in North Africa and so on. It was, it was quite interesting and varied work.

JW So you were a boffin!

FD Well ... a handy, a handyman chemist, I think ... would be better!

JW Now, after Cambridge of course you were appointed to...

FD Leeds.

JW ...a chair in chemistry in Leeds.

FD Mmm. Mmm.

JW How did that come about? Did you ... was it something for which you were invited to apply or were you encouraged to apply?

FD Well, it was curious, in a way. The previous year, the professor at King's College London had retired – a man named Allmand¹⁰ – and I'd been written to in this connection. But I was so happy in Cambridge. For two reasons. One is, marvellous crop of ex-servicemen, you see, this was 1949. I was building up a little group. I was being independent. Our first child was born; we'd got a house, you know. There was rationing, it didn't matter. Life stretched ahead. And this was just disturbing, King's, and I thought about it briefly and said 'No, I wouldn't like to put my name forward.' And then it must have been either late 1949 or early 1950, I can't remember which, there came a knock at my door in Cambridge by a man ... a little man with grey hair who said 'I'm Charles Morris of Leeds.' I didn't know who he was. And he ... I said 'Come in,' – it was about 11 o'clock – 'would you like a cup of coffee?' 'Yes.' And we chatted for a bit. 'Would you like to see the college?' 'No.' And in desperation I said to him 'Well, what do you want?' And he opened his hands, the most charming gesture, and he'd already of course gained my confidence, said 'We want you in Leeds.' And so I went up there, and there was a formal interview. It was a good chemistry department. I knew that. There was the pull of the West Riding. Very different. I mean, I couldn't have gone to London, but ... West Riding was fresh air. And so I went there, and they were extremely happy years. And I never intended to leave.

JW No. We perhaps might interrupt at this stage because you've mentioned Barbara, and you've mentioned your first child being born and the house and that. Where did you, where did you and Barbara meet?

FD Oh, that's an interesting story which again had its ramifications only last Saturday. What happened was I had a school friend who had gone to Cambridge. Well as a matter of fact a line of very good brothers; four of them, poor family in Sheffield. One boy did night school with my elder brother and got a degree with him at the same time. The three others all got open scholarships to Cambridge. Mother

¹⁰ Arthur John Allmand.

was in service like my mother, you know. It was a very similar sort of family except that there were so many of them going to their house was like having liberal education! And anyway, what happened was that the second eldest of them, at the age of 28, got a chair in Melbourne. He was a university demonstrator in botany in Cambridge. And he was engaged, and he asked me if I would look after his fiancée for the year that she remained behind to complete part one of the Natural Sciences Tripos and make sure she did well in chemistry, and also be generally friendly. And it was through her, one of her friends was Barbara, and that's how we met.

JW And Barbara was reading what at the time? Or was she?

FD She was, she went up in 1936 on an open scholarship, to Newnham. There was one week in her life when she got a scholarship here in Oxford and a scholarship in Cambridge, having been pronounced by an educationalist in Manchester many years earlier as almost educationally subnormal!

JW Yes! Well, we've heard that before, yes!

FD And she was reading natural sciences and by 1938 had started on part two of zoology, which was a two-year course. So she was a zoologist. And her father was a very distinguished geologist. I didn't ... I mean for me marrying into that family was ... would have seemed years ago quite impossible. It was the social stratum above mine.

JW Yes, well, I can understand that from what, from what you've said. But anyhow you married. In what year?

FD 1942.

JW 1942, during the war.

FD Yes, during the war.

JW And lived together in Cambridge and so on?

FD Lived together in Cambridge, Leeds, and ever since.

JW Now in Leeds you had, I think it must be about 15 years there?

FD Yes, it was.

JW And very happy, fruitful years?

FD Yes.

JW Was it during your time in Leeds that you became a Fellow of the Royal Society?

FD Yes.

JW It was, yes.

FD I'm not quite sure when ... mid or second half of the fifties.

JW And clearly it was an immensely productive period both in teaching and in research...

FD Yes.

JW ...in the broadest sense. I mean, at the peak as it were how many people did you have working for you on your research?

FD Well, I really ... I really wouldn't know. But it was a very large group. And many of them from overseas, from the old dominions – Australia and New Zealand, Canada, the States – predoctoral and postdoctoral. And also Eastern Europe, which began in a very amusing way, starting with Poland, and ... and those connections have remained, so... And it was a marvellous cosmopolitan grouping.

JW So you would no doubt have grants not only from industry but from the SRC [Science Research Council] and...

FD Oh yes. And American industry too.

JW And American industry?

FD In fact my interest in medicine in part... It had begun earlier in Cambridge, because I was for a year director of studies in medicine believe it or not for St Catharine's, Cambridge.

JW Oh, were you?

FD Yes, when the man who was responsible had a year's leave. And that introduced me to the dreadful Gray books in anatomy, which had to be signed, and I had to be sure they'd be signed for the purpose of degree giving, you see. And I started asking questions, you know 'What do you do?' Well, it seemed to me to be terrible rote learning. And I had myself, having lost a finger, and the second finger had got callused, I wanted to know about the anatomy of the hand. And I looked at ordinary anatomy books, and they seemed to me to be dreadful. I mean, *Gray's Anatomy*¹¹ was terrible! And until I found a book by Wood Jones¹²... I don't know if you...

JW Oh yes. Exactly. The principle of good anatomy is shown in the hand.

FD That's right.

¹¹ *Gray's Anatomy* was first printed in 1853 and went into many editions.

¹² Frederic Wood Jones, *The principles of anatomy as seen in the hand*, London; J & A Churchill, 1920.

JW And another one on the foot.¹³ And quite a different way of teaching.

FD Functional.

JW Absolutely, yes.

FD And I thought 'Well, this is it.' And it made ... in fact, by working at it on my own I was able to ... well not on my own because obviously Barbara supported me ... very long sort of home physiotherapy, got some use back into it.

JW How did that happen, incidentally?

FD Oh, I was making a compound just towards the end of the war called (?) peroxide, and it's very sensitive and explosive material, and I didn't take proper precautions. You didn't; you rushed, you see. There was pressure on. But that was a silly mistake, I shouldn't have done it.

JW There was an explosion?

FD Yes. But that got me interested in medicine and medical education. Then when I ... to come back to Leeds where we were, as professor of physical chemistry I was ex-officio on the ... faculty of medicine. And then they put me, I think I was the only non-medic on the medical curriculum committee. And I got so irritated by that because ... and I now say this so there must still be some people from Leeds who will either know what I'm talking about and approve of it or strongly disapprove of it... But the impression I got that was very clear was that the clinical part of the course, that the time allocation should be in direct ratio to the private bed allocation at Leeds General Infirmary. And I thought that had nothing to do with medicine.

JW Absolutely. Leeds actually, yes, I'm sure you would agree, on the medical side was a rather unhappy place for many years.

FD Oh yes.

JW The university didn't speak to the people on the teaching hospital at all, and the, and the regional board was at daggers drawn.

FD That's right.

JW It was a very difficult situation as I recall it. Some ... well, *prima donnas*, people like Garland¹⁴, Hartfall¹⁵, Tunbridge...

FD Oh yes. Yes.

JW ...from that particular era, whom you'd know well.

¹³ Frederic Wood Jones, *Structure and function as seen in the foot*, London: Ballière, Tindall and Cox, 1944.

¹⁴ Hugh Garland.

¹⁵ Professor Stanley Jack Hartfall.

FD Oh, very well. And in fact Ronald Tunbridge was the one man who tried very hard to bridge that gap. He served in senate; he tried to get his colleagues along with him. But to a certain extent his nice nature was misunderstood by the more ruthless, particularly surgical colleagues. And I can remember I achieved a certain amount of notoriety when I resigned from this medical curriculum committee and did it quite consciously at senate. Because I said 'I cannot get on with these thugs, who will not ask themselves first of all 'What do we expect of a doctor?' and then 'How can we best help prepare him for it?'' And by that time I mean I'd got hooked on it. And also I had for purposes of my earlier research in Cambridge needed an x-ray source, and Professor Joe Mitchell had let me have his in the radiotherapy department.

JW Before he went to Cambridge?

FD Well, he was in Cambridge.

JW Oh, I beg your pardon. Of course, yes.

FD He was in Cambridge. And that's ... before he was regius professor of radiotherapy. And I had got interested in the effect of radiation on living cells. But also, to come back to Leeds, I had had great help from some of the Friends of the LGI and their endowment funds, who built a special lab for me at Cookridge Hospital which became the regional radiotherapy centre, because I got a very fine cobalt source for them from Canada which was used for therapy and for research. And that centre still exists. And oddly enough so do ... is one of, is the northern centre for the National Radiological Protection Board.

JW Well, that's interesting. We shall come back to the NRPB later. Was the interest in medicine that was growing one of the reasons that attracted you to going to Nottingham where there was of course a new medical school?

FD It was the only reason!

JW It was the only reason. I see!

FD Yes. Yes.

JW Right, that's interesting.

FD It really was. I mean I never wanted to be a vice-chancellor. It was not my cup of tea. That, nor being head of house; I hadn't got the temperament for it I think in many ways. But what happened was I had a ... a letter from a man named Sir Francis Hill, who was chairman of Nottingham Council. And I had been approached for vice-chancellorships before and always refused, with one exception. I went actually to see the place – that was Liverpool – where I was again offered it, and refused after a great deal of reflection and care and thought about it. So when I got this letter from Sir Francis Hill saying would I have lunch with him in Lincoln to discuss the possibility of my going to Nottingham as vice-chancellor, I wrote a letter at once saying 'Dear Sir Francis. No, I'm afraid that I have to say no. I regret it very much. Yours sincerely.' And my wife, always keeping an eye on me, said 'You can't send that letter!' I said 'Why not?' 'Well, you're not giving an adequate explanation.

It's discourteous, you see.' So I thought 'All right. Well, I'll add something.' And I had just got a very large grant for those days, this was '64 I think, £100,000 from DSIR to build a big Van de Graaff machine in Leeds, and use that for all purposes. And I, so I wrote and said 'I really have to stay and do this.' And two days later the then vice-chancellor of Leeds, Sir Roger Stevens, sent for me and showed me a letter from the secretary of the DSIR to Sir Francis Hill saying 'Of course Professor Dainton can bring all his equipment to Nottingham.' And I hadn't even bothered to tell Sir Roger Stevens that I'd been approached, you see. So I thought well, I'm dealing with a character of some force!

JW Quite, quite.

FD And then I got a letter from Sir Francis Hill saying 'I've been in touch with DSIR. You know, this is not an obstacle.' So I went to meet him and I was absolutely captivated by him. But more important, you see, at that time it had already been decided that on a number of general grounds Nottingham, being very under-doctored and a centre of population, might be a good centre for a new medical school. Because of that the Department of Health took an interest with the UGC in who would be appointed the next vice-chancellor. I had stuck my mouth out on these matters, and behind the scenes there had been some talk, and so I was invited to do this. And I thought it was a glorious opportunity, not to build a new medical school to produce 150 more doctors a year or whatever the figure was, but it's been a ... a fact of life for me that you don't teach people by a precept, if possible they learn better by example, and therefore if we could do something which would be worthwhile, perhaps others might follow and it would have a multiplier effect. Well as it happened, the university had already been thinking along these lines, and they'd approached Sir George Pickering to be chairman of the Medical Advisory Committee. And that was the clinch point for me. I didn't know George, but the fact that they had thought that they would look at the curriculum first before the buildings struck me as absolutely right. So I joined that committee before I went to Nottingham...

JW Before you went.

FD ...and it was a very interesting educational experience for me. And I may say, since you're from Newcastle, we learnt a very great deal from what was happening in Newcastle.

JW Well, it's kind of you to say that, because you must have had a very close relationship with David Greenfield. A very quiet, reflective man.

FD Yes.

JW And I always pull his leg over the fact that the objectives set out for the Nottingham curriculum were quietly borrowed from the ones we'd written in Newcastle.

FD Well, they weren't ... they weren't so much borrowed as arrived at and coincided with.

JW Very similar.

FD Very similar. And this was not because we were ... we didn't...

JW No, with acknowledgement, let me say.

FD That's right. We didn't learn about Newcastle until a bit late on. We'd had a big meeting at ... and David had not been appointed by that time, we'd had a big meeting at Ditchley Park with some Americans – Bob Evitt(?) from Harvard, and of course Paul Beeson who was here, and various others, and people from all over the place, and Albertine DeWinner(?) and so on – and discussing all aspects of it. And I was largely listening and making notes as you can imagine. And we took evidence from a whole group of people, and it seemed to be quite clear that we needed a fully integrated course.

JW Yes, yes.

FD And then, at about half way through the inquiry I began to learn about the Newcastle thing and how it was in the van in these matters. Incidentally, the medical students we saw gave a very good impression.

JW Did they?

FD Extremely good, to me. I don't know whether they did to the doctors themselves.

JW Oh yes, I think so. There's no doubt at all. And in fact we were very fortunate in, as you know, being able to recruit people who not only, who were the intellectual cream, but also people with the right kind of cognitive abilities.

FD That's right. And the real thing that made that possible was the decision by government about 1957 to make mandatory grants available to all who got places in universities. It opened up medicine.

JW Of course, it did, it did. To a lot of people who might not have been able to afford it.

FD That's right.

JW Now, you had only five years in Nottingham, but obviously five fruitful and happy years. What do you think were your major achievements in Nottingham during that period?

FD Oh, I don't think there are any really.

JW I'm sure there are.

FD What I would like to think... And I was only told ... when was it, last week, oddly enough ... was that Nottingham was an extremely smug university. It had a lovely campus, which it still has. It had a steady flow of students, no problems. It had no resource problems. It was happily ensconced in the city. But it was in a sense

too easy. So it had to be shaken up a little. And I can remember ... I thought the only way in which I can really make an impact here was to hold back a little money from the recurrent grant which became known as 'the vice-chancellor's slush fund'. And use that in what I always thought was the key role of the vice-chancellor, which is to use his influence to get the best possible person to chairs and heads of departments. And if one could hold a bit of money back to give them a honeymoon grant, an extra post, a bit more equipment, and of course more pay... What many universities did not seem to realise was there were no rules preventing you from paying a professor, if you really wanted him, well over the odds. And we got some good people that way. The other was the medical school itself, which I took a very deep interest in.

JW Didn't you have a problem though over the professorial average, so far as the salaries were concerned?

FD Oh, oh yes, I did. But I mean I largely ignored that on the grounds ... well we were growing, you see, and I said 'We'll get new people who are young, give me a year or two and this will adjust itself.' I knew a little bit about the UGC [University Grants Committee] because I'd ... in fact in 1968 I was offered the chairmanship of the UGC...

JW I know, yes.

FD ...and I didn't go, because I didn't think that the medical school was able to defend its own interests in senate without my help. And that's why I never went at that stage.

JW But you did of course become...

FD I did later, yes.

JW ...chairman of the UGC in 1973, for five years.

FD Yes.

JW Which we shall come to. Now, it then must have been an interesting experience to have been invited to come back to Oxford, to Dr Lee's chair ... which again, this was perhaps unexpected. Or was it?

FD It was totally unexpected! I had been for some years, but never been called into action, I'd been an elector to Dr Lee's chair of chemistry. And ... what happened was that ... I think it must have been about December 1969 or somewhere roundabout there, Sir Folliott Sandford, then registrar of the university, rang me up – and I scarcely knew him – and said he would be, the university would be obliged if I'd remove my name from the board of electors. I said 'Do you mean resign?' He said 'Yes.' And I said 'Well if that's your attitude, of course!' I know when I'm not wanted, I nearly said! And then I suppose it ... I don't know how long it was, perhaps a week after that, Alan Bullock rang me up and said 'The electors have reached(?) a unanimous...' (?) I didn't know that's how, the way things happened in Oxford! So that was that. And I thought about it, because I had just also been appointed on a body called the Council for Scientific Policy, which we now know as the Advisory

Board of Research Councils, to which I changed it in my tenure. And it struck me that after five years now Nottingham medicine was settled, that I knew of problems at the centre, and I was chairman of this Council for Scientific Policy. And because of my ... presence on the Central Council for Science and Technology, the equivalent of ACOS(?) now, I knew of threats to the research council system and I felt I could better defend science by being seen as a scientist. Now that may have been a wrong judgement, and in some ways I think it was. But certainly I couldn't do the amount of work and remain a vice-chancellor. So that was the reason ... fundamentally.

JW Yes. And of course there is a story that may be somewhat apocryphal about your comments to a certain lady ... head of house when you actually came back to Oxford.

FD Well, yes, that's quite true! I mean, you'll find it now ... only the other day someone drew my attention to it in Jeremy Paxman's book.¹⁶ No, that's quite true, I did find coming back to Oxford after 20 years in the big civic universities a bit of a shock to tell you the truth. It had not much changed. It had expanded. But the attitudes were very similar. And the patronising attitudes to the big civic universities, which were carrying the heat and burden of the expansion, and doing so uncomplainingly and without demanding great extra resources. And to come here and find that they were looked down on, I found intolerable.

JW Yes, well, I ... I appreciate that, and have had the same experience of course. Not so much in medicine and science.

FD No, no.

JW Not at all. In certain other fields.

FD In the lab it was all right. In the colleges...

JW What did she say?

FD Well, she meant it extremely well, and she ... obviously had said words to that effect before. She said 'How nice, Professor Dainton,' and she meant well 'Well, how nice for you to come back to Oxford from the provinces.' And it touched me on the raw because I'd heard it before. And I said, you know 'Well, I find the transition from the provincial to the parochial interesting!' And ... and the interesting thing about that was not the remark that I made, which was rather a snide remark in some ways, but the fact that people didn't say that sort of thing to me subsequently.

JW No. No. So that the news must have got round.

FD The news got round.

JW Yes. Now, clearly in that particular chair you managed to go on contributing outstandingly to your research while at the same time holding many other prestigious

¹⁶ The discussion refers to a conversation between Dame Kathleen Kenyon, then principal of St Hugh's College, and Frank Dainton soon after he took up Dr Lee's chair. See Jeremy Paxman, *Friends in high places: who runs Britain?* London: Michael Joseph, 1990.

appointments, like the chairmanship of the UGC from '73-'78. Was that a fruitful experience, an enjoyable experience?

FD An extremely interesting one. Because the day I went into the UGC – the 1st of October 1973 – was the day on which the government announced, as far as the university sector was concerned, that all capital building projects must stop...

JW My goodness.

FD ...that inflationary protection on university grants stopped. And at that time, you may remember, the expansion of the universities was occurring so rapidly in student numbers that there wasn't sleeping accommodation, and some of them were sleeping in lecture halls on the first few days and weeks of term. And I felt this was intolerable. And so having already got to know something about Whitehall I went round the next 34, 36 hours, eagerly saying 'For God's sake, let us have a little bit of money for building student housing of some kind or other, to get rid of this anomalous and really disgraceful business of treating students this way. And we can do it by loan financing, if need be.' And so we got that moving. But from then on I was, of course in the year 1974 universities grants were not adequate, we had 30% inflation, and I spent a lot of time getting from Mr Reg Prentice, in the Labour government, supplementary grants to try and tide us over. And in fact during my whole period at the UGC the only thing which I managed to preserve, oddly enough, was the medical plan; increasing the intake of medical students to 4,200 or something, I've forgotten what it was, which had been the cut-down number from the 5,000 which had been originally recommended by the Todd Report¹⁷. But we did keep faith with that.

JW Yes, indeed. Right. Now, of course, we're going to be running out of time before too long in relation to the rest of this appointment, the rest of this interview, but the chancellorship of Sheffield must have been something that gave you great pleasure.

FD Oh, enormous!

JW When did that come about?

FD Well, before ... I can remember it very well, I was conducting what the UGC called a 'visitation' at the University of Manchester, and I was told there was an urgent telephone call for me. And it was from the chairman of the council of ... this was 1978, the chairman of the council of Sheffield University. And I thought 'Oh God! What's gone wrong with Sheffield?' And it was a man named Mr Bartolome, a strange Spanish-sounding name, whose grandfather, a medical doctor, had come from Spain and been influential in the old Sheffield medical school, and retained the connection with the university. And [he] said would I be interested, on retirement, in this ... and I've rarely been more pleased in my life. I thought it was a marvellous compliment, and I felt it would give us great pleasure to have something to go back to, and see the place, and help a big civic university if I could. So I said 'Yes.' And I think the appointment began January 1st 1979. I remember meeting the council in January.

¹⁷ The Todd Report was produced in 1968.

JW And you've been doing it for 12 years, and if I may say so, from every standpoint, assiduously, with regular visits.

FD Oh, I love it!

JW Not only for the degree ceremonies and ... but at other times.

FD Yes, indeed. I like to get to know the staff, and so I... Recently we've been so busy finding the new vice-chancellor we've now got that I haven't had as much time to get round departments as I had. But I have, I've been round medicine with the present dean, Woods¹⁸. I've been round dentistry, entertained those factors, just for pure interest, and... But I haven't been round all the departments yet. There's some that I must go to.

JW Good. Well, I think we're going to have to cut the interview a little short, because I would then welcome the opportunity however of going into many more things: about your relationship later with the Goldsmiths', the Royal Postgraduate Medical School, and many of the other things about your elevation to the House of Lords and the way in which you've been contributing so ... again assiduously to the, to that organisation. But for the present, I think the interview is now at an end, and I'm very grateful for the opportunity of having talked to you.

FD Oh, thank you very much indeed. Very kind of you.

¹⁸ Professor H Frank Woods.

Part Two

JW We were just discussing your experiences as chancellor of the University of Sheffield. But of course you've held a great many other prestigious appointments in your time, many visiting lectureships, visiting professorships and so on, and you've served on a great many important committees. What about the National Radiological Protection Board, how did you become involved in that?

FD Well, as I think I mentioned earlier, some of my research fringed on medicine in the sense that I was interested in the effects of what we usually call 'ionising radiation' on living cells, particularly human cells. For two reasons. One was the effect of handling radioactive material. The other was the possible radiotherapeutic benefit. And therefore I had a certain amount of knowledge. I was already being, got a medal from the British Institute of Radiology, and I had been involved in one or two little inquiries. And I was asked if I would become chairman of the National Radiological Protection Board in succession to a doctor, Sir Brian Windeyer...

JW Oh yes, mm.

FD ...and, which I very cheerfully did. And I also think ... believe profoundly in the value of independent bodies, in what I call 'regulatory science', to protect the public. I think they're suspect if government controls them. And yet they have to be government funded. And it's always an interesting balancing act as between doing what the public will deem to be right through government, and also being genuinely independent in the conclusions to which you've come on the basis of scientific evidence. And there's quite a little thrill, I mean, and an importance; you might change a regulation in radiological protection and put a burden of hundreds of millions of pounds on the nuclear power industry. Quite rightly. But you have to be conscious that you're doing it.

JW What's your view, in the light of that experience, about some of the recent publicity relating to leukaemia and exposure to the environment of nuclear power stations, for example?

FD Well, I ... I think the difficulty in this is an illustration of something else that has always been a deep belief in my life, and that is that we need to know more about science generally, publicly, if we are to make decisions wisely in the future, because it will increasingly enter as an element. And that's a good example. People say there are so many cases of leukaemia around a nuclear power station which are in excess of the normal number. Now that may or may not be true. But let's assume it is true. That represents an association of two things ... which you might get an association of two things like, for example, the incidence of tuberculosis and cow dung in the streets of London in the Victorian era. But it doesn't prove a causal relationship. And until you've got a causal relationship you neither can be sure of it nor know what is wisest to do. And so I've always tried to insist on that. And, you see, what one has to say is that there are clusters of leukaemia away from power stations.

JW There are indeed, indeed.

FD And so somehow one is educating the public, not in any patronising sense, but trying to get, help them to think straight about these matters about which they are deeply and rightly concerned.

JW And of course one of the problems that we face in all of these issues is the, is the role of the media, that sometimes can be extraordinarily biased in their reporting of issues such as that.

FD Well, exactly. And I mean I have... I remember one occasion when I was chairman of NRPB, actually ... offering to Yorkshire TV two minutes at the most, one minute if need be, a very simple statement, with pictures, of the relationship between dose received and the effect observed, very very quickly, and pointing out the real difficulties – that the scatter of the points was enormous, and secondly, that the medical adverse effect was often expressed 20, 30 years after the exposure. Now that makes life extraordinarily difficult to get good statistical data, with the best will in the world. Another way of tackling it of course is to say ‘Let’s explore the relationship scientifically’, which is what I was trying to do right at the early stages of the delivery of the radiation. And [I] have of course had to have contact with the radiotherapists and radiobiologists, which I had throughout my working life.

JW Mmm. Another body of course with which you were much involved is the British Library Board. I gather you had a little tangle with the media over that!

FD Oh well ... yes! If you’re interested in the British Library, the setting up of the British Library occurred whilst I was at Nottingham, in the sense that I was telephoned by the then Permanent Secretary of the Department of Education and Science Sir Herbert Andrew, a very nice man, who said ‘We’re in a mess with the libraries which we support in government.’ Which were free standing independent libraries; Science Museum, the National Lending Library for Science and Technology, the Patent Office and so on. ‘We don’t think we’re getting value for money, and they don’t like us and this messy arrangement, and the general view is that you would sort them out.’ I had been a chairman of the Advisory Committee on Scientific and Technical Information, and of course my interest in libraries led me that way. And so I refused to do this, at once. I was at Nottingham, I was very tired, I’d just finished another report and I thought no I can’t take another... Anyway he came back at me on Sunday morning, having been to church, and ... I’d put up a whole list of conditions which I knew he couldn’t agree to, and unfortunately he did agree! So I then had this to do. And the National Libraries Committee was set up, and we reported within 15 months that there should be a National Library made in this way, that it needed a building and various other things.¹⁹ And once that had been in, and then two governments steered through the National Libraries Act... And I forgot about it in a sense, I was so busy at the UGC. And then Mrs Shirley Williams²⁰ sent for me at the end and said, you know, ‘Would you, would you be prepared to do this job?’ And I jumped at it, and I enjoyed it enormously. And the reason why I think ... the point which you raised emerges is because it was absolutely clear to me that you could not have a national library in Britain without a new building where... Because that was the cheapest way of preserving the extraordinarily fine collections we had,

¹⁹ Report of the National Libraries Committee, London; HMSO, 1969.

²⁰ Mrs Shirley Williams was minister of state for education of science 1967-69 and secretary of state for education and science 1976-79.

that they were deteriorating distributed in buildings all round London. And it's very easy to work out that photocopying won't do because you're still left with the original material to look after, and photocopying is so expensive. So the time came in 1980 when I had to ask Mrs Thatcher for this. And from then on, when she'd agreed to it – and the decision was made in November, announced in Parliament, and she very graciously came to the library itself to announce it to the board – from then on those people who were against it ascribed its establishment as my evil influence over her because I had taught her. Nothing could be further from the truth! She was an undergraduate at Oxford when I was in a place which intellectually could not be further removed, namely Cambridge!

JW Yes, quite! Well I'm glad you've put that record straight, because it has been widely...

FD Oh, it will go on for my lifetime I'm sure. But she was convinced, I would like to say this, on 16th of September 1980...

JW My birthday!

FD ...Oh, splendid! By the force of the argument, which was simply, you know, 'If you do it any other way it will cost you more.'

JW Yes, yes. Well I'm very glad. And of course you've now relinquished that chairmanship and handed over I think to Tony Quinton²¹, haven't you?

FD Well no, he's finished.

JW Oh, he's finished?

FD He's finished, and it's now Michael Saunders Watson, with whom I was speaking this morning on the telephone.

JW I see. Right, so you still, at least...

FD Oh, I still chair one committee on what's called one-three-B(?), and I am vice-president of the Friends of the Library, and ... and I go in whenever I can. And they did a very nice thing when I retired. They ... I don't know whose idea this was, but they decided to not only have a portrait painted, but to establish an annual lectureship, which is given in the Royal Society each year, under my name.

JW Yes. Now, just to interject for a moment, you mentioned something that ... just a moment ago, when you'd been to church one morning. You like me were brought up I think as a Methodist?

FD Yes.

JW Are you still a Methodist, or do you go to the, to the Anglican church?

FD Well, I go to college chapel.

²¹ Chairman of the British Library Board 1986-90.

JW Do you?

FD I mean, if you were to press me for what I really believed I don't think I could answer you. I think I would be agnostic in an open way. I honestly say I don't know. I do believe however in a corporate act, of some kind. And I do it in college, with my wife, for two reasons: one of which is it is a corporate body, and if it has any life it has some other meaning as well, and it is a human society. I mean, I've never articulated it to them there of course.

JW No, no.

FD So I ... we do go pretty regularly.

JW And you see that the new Archbishop of Canterbury is in trouble for saying that those who oppose women priests are ... are guilty of a serious heresy. What do you feel about that out of interest?

FD Oh, I can see absolutely no reason why women, as fellow human beings with men, should not have accessibility to that as anybody else.

JW And there we're in total agreement.

FD It worries me. And as a matter of fact in St John's Chapel we often have women preaching, I'm glad to say.

JW Yes, yes. Well now, to come back to your, to your relationship with medicine, how did it come about that you became chairman of the Royal Postgraduate Medical School at Hammersmith?

FD Oh! Well, I really don't know who was behind it. I suspect it was the hidden hand of Malcolm Godfrey, who was the then dean. And the chairman who existed had given notice that he wanted to go, and so I was invited to become a member. And I did so because I'd never actually touched postgraduate medicine as a formal entity, though I knew about the institutes in London and was a bit perplexed by them. I knew it was a high quality institution, and I thought I could keep my contact up, and so I said yes, I would join them. And then within that first year the then chairman resigned, and they asked me if I would become chairman of the council. And I've enormously enjoyed it, though we've gone through very difficult periods.

JW Of course you have. So that having been involved at an earlier stage with the private practice *prima donnas* at Leeds, you then got involved with the medical academic *prima donnas* at Hammersmith.

FD Oh ... that's right. But the great thing about Hammersmith was, that distinguished it was ... one, the chiefs of service were whole-time academics, secondly there was an annual influx of very able young people either on short courses or on research degrees or whatever. And they were, they always struck me – and who am I to judge? – but they always struck me as very bright and good people. And they came from all over the place. And it was part of the University of London, and that

was good. And I mean, one of the reasons why the Clinical Research Centre in which I was involved never really took off was that it hadn't got these young people coming in.

JW Exactly, exactly.

FD And it hadn't got the control of the beds.

JW So were you involved in the ultimate decision to close the Clinical Research Centre and to split it up, or move part of it at least to Hammersmith?

FD Well, I was ... when ... I think it must have been Sir Harry Himsworth who was secretary of the Medical Research Council²², right in the early days of Northwick Park, in the early seventies, I was asked if I would join a group of people which consisted of Lord Hayter(?), the chief medical officer and myself and the chairman of the ... I think it was North-West Thames RHA, on a sort of annual review of what was going on at the Clinical Research Centre. And it was then that I – and I was appointed by the Medical Research Council – and it was then that I felt I had to report back to Harry Himsworth's successor John Gray²³ that it really wasn't working as I thought it should work. So when I was chairman of the council of RPMS, and there was mooted this movement of at least a major part of it to Hammersmith, I rather welcomed it. I thought they would benefit and we would benefit, because of their good parts. But then we ran into all kinds of difficulties which were not... I mean, it was a thing which was endorsed by the Secretary of State for Education and Science, by the Secretary of State for Health and Social Services as it then was – Kenneth Baker, Kenneth Clarke, all their ministers. And it was stopped and frustrated at Number 10, for no good reason that I could see. And we spent [an] endless amount of hours, days, weeks, inquiries, getting accountants in to test its financial feasibility, testing it against green-field sites and so on. In the end it came unstuck at Number 10. But now, I mean, the Clinical Research Initiative is launched, and only the other day I was talking to the secretary of the Medical Research Council and in a sense it's going to be better.

JW Mmm, I think so, in the longer term.

FD Because we're going to be in charge of our own site.

JW Yes. Well, I was on the MRC in John Gray's time, and was actually chairman of the NIMR/CRC committee which...

FD Oh were you?

JW ...for a short period, and knew something of this, of this...

FD Yes, yes. Well, you'd know more about it than I did, I think.

²² Sir Harold Himsworth was secretary of the MRC 1949-68.

²³ Sir John Gray was secretary of the MRC 1968-77.

JW Well, I didn't know all that amount, and I'm glad to have had that interesting insight into the earlier stage. Then of course I came off the MRC in '78, so you'd know more about it...

FD Since then.

JW ...much more since then. So that that was another way in which you were interested in medicine. Tell me, how did you become involved more formally with the Goldsmiths', who'd helped you in your student days and postgraduate student days?

FD Oh, it was out of the blue really. I think when I was a professor here I was asked if I would be interested in becoming a freeman. I'm not quite sure who was behind it. I think it may have been a man named Wansbrough-Jones²⁴ – who had been a past prime warden and whom I knew at Cambridge, he was I think senior tutor of Trinity Hall, and a chemist – who may have been behind it. And so I became a freeman, and then within, to my astonishment a member of the livery within the twelve months, and then a year later on the Court of Assistants. So there was some plan behind this of which I'm unaware.

JW The fast lane, as they say!

FD The fast lane, as they say! And I've greatly enjoyed it, because it's enabled me to do very interesting things. It's a link with silversmithing in Sheffield, which I knew about, and Sheffield plate, and I enjoy craft. But more than that of course it's got some monies to dispose of in education and ... for charitable work, and I now find myself in the centre of both those activities.

JW And you're still helping students, as you were helped in your younger days.

FD Yes, and in particular medical students of course. As you know, we've tried to do it. And just at the moment we have put out ... I've written a letter to five institutions in London saying 'Problems are now being faced by students in London, times are(?) very difficult. Will you offer us a scheme of up to quarter of a million pounds that we might support to enable you to keep students who are able, but who want to drop out for financial reasons?' And I'm just getting the replies in.

JW Well, that'll be tremendous. One of the other initiatives I think for which medicine is very grateful, is that following in the steps of the initial scheme of the Fuchs Foundation, you've been much involved in a scheme for helping, financially, scientists who wish to study medicine.

FD Oh yes, I've been very keen on that. And, in fact, we ... we had done quite a bit of this in the Goldsmiths' Company but only when people applied to us. So I thought I'd better look into it for myself and see what the size of the problem was, and wrote to the chairman of the deans of medical schools and began to collect a bit of information about this, and discovered there is an intake of two or three hundred a year of these people. And I thought well, we aren't fit to separate John from Joshua from Mary, in terms of need and quality, could we find an agency to do it? And

²⁴ Sir Owen Haddon Wansbrough-Jones.

we've been giving, I think it's £20,000 a year, to this end, for some time. And we shall keep it up. And also another little trust I'm concerned with. And the reports we get back are very encouraging. We've now been doing it long enough to know that we get good people that way.

JW Yes, well, I think it's a marvellous scheme, and certainly very fruitful to the future of medicine. You're a trustee of course of innumerable bodies. Are there any other major trusts that you would like to bring out in the course of our discussion?

FD Well, I was a trustee of Wolfson²⁵, and we did quite a bit of medical work then of course, and also trying to build links between universities and industry. What we could do in Wolfson quite often, and I ... I had a programme there called biotechnology, at a time when biotechnology as a science was developing very rapidly but there weren't premises for it in universities. Now what Wolfson could do was provide bricks and mortar. We had that scheme. And we also had schemes in which we could support areas of activity which are non-scientific, tend to get overlooked; the arts and humanities. And so we established a scheme with the British Academy. And I was always behind that, because years ago I had misappropriated UGC funds to give to the British Academy, and we found out one day... Because I was so concerned that the arts and humanities faculties needed money for travel to go to the Bibliotheque Nationale or whatever, and the universities just hadn't got the resources. So I met, said 'We will call the British Academy our agent for giving money to universities by this route.'

JW Yes, I see. Now, just to change the subject for a moment, because there are a few academic things I'd like to come back to, you mentioned before we started to talk today playing football as a boy at school...

FD Oh yes.

JW ...and finding yourself being kicked on the head and knocked out at Rotherham Grammar School...

FD Yes!

JW ...I recall you were saying. Are you a keen sportsman? What have been your sporting interests throughout...?

FD Oh, very poor, really. I mean all I played was a very low-grade football, and a little bit at college here. My major interest if it's called a sport was swimming, but it was largely for pleasure. My real enjoyment was in the countryside; walking and so on. And of course Sheffield is marvellous for that.

JW Absolutely, yes.

FD You can get up to 1600 feet within the city boundary, and ... as a matter of fact it was the poor families' playground. And I think that partly accounts for the attractiveness to young people of this as a city to come and study, that they can see

²⁵ Wolfson Foundation.

this. But I played tennis of course, and squash, until our elder daughter began to beat me at Nottingham!

JW Yes! Exactly, exactly!

FD And then I thought I'd better give up! And then sadly my eyes began to deteriorate, and I wasn't seeing clearly enough to play good sport and games. I never took to golf, I don't know why. Never ... that never came my way.

JW Indeed. And if you ... in the midst of your extremely busy life have any leisure interests, what ... apart from walking and fell walking and so on what have been your main interests, you and Barbara's?

FD Oh, reading. Reading. Listening to music. I used to play the violin until I did this to my hand, whenever we had time. But I'm bound to say that in a sense I never actively felt I needed leisure, because it was fortunate enough during life that everything that I had to do was interesting in itself. Now if you're doing interesting work it isn't tiring. It's the humdrum routine work which is boring and really gets one down, and one needs refreshment. And having changed jobs quite a bit, each change – although I hated making each one of them, I really did, because it was breaking links – after a bit the stimulus of the new job, and new situations, kept one really going. So I ... I don't think you need leisure in that sense. It's not that I'm a workaholic, not at all. I actually enjoy it!

JW Well this is clearly a selection of Dainton aphorisms for the future!

FD Well, I don't know!

JW Which we shall be able to turn back to! Many of your foreign memberships and honorary degrees must have given you enormous pleasure and pride.

FD Oh yes.

JW One of the curious things is the way in which different universities have such different ways of conferring...

FD Oh yes.

JW Are there any of these that stand out in your memory as being in some ways exceptional or interesting?

FD The most ... well, it's difficult to say. The connection with Poland has been a very rewarding one, which came about simply because the Polish government in the early fifties decided it wanted to send a couple of postdoctoral fellows in chemistry to this country. They had money then to do it. And one of them went to Lord Todd²⁶ in Cambridge, the other was sent to me in Leeds. And as it happened he was a very fine man, Josie Krow(?). And that started a flow of people from Poland, and the connection with Poland. And I think the thing that touched me most was when the

²⁶ Alexander R Todd was awarded the Nobel Prize in Chemistry in 1957 "for his work on nucleotides and nucleotide co-enzymes."

Polish Academy of Sciences Radiation Research Section decided to have a Curie Medal, after Madame Curie, who was Sklodowska-Curie, and I was the first recipient. I was very very touched by that, because, I mean to be a chemist... She was of course a chemist originally herself. But most of the people ... I mean the Curie Foundation is concerned with the therapeutic side of chemistry and treating cancer patients, and so is the French Curie ... the Fondation Curie and the Curie Hospital... To have gone out to a scientist who really has made a small contribution by comparison with other people, was very, I think was either an example of gross favouritism, or an enormous compliment. And so I was very touched.

JW I'm sure that the second interpretation is more correct.

FD Yes. And it was a lovely thing in itself. A poor country, you see, giving me this thing, beautifully designed.

JW That chateau of the Polish Academy is a very attractive location, isn't it?

FD Yes. Yes.

JW Of course you've, you must have received honorary doctorates from a very high proportion of British universities, but certainly also from others overseas?

FD Yes. And some of those are funny! I mean Uppsala was in some ways the funniest, because it was by far the most bibulous!

JW Oh, was it?

FD Oh yes! The amount of schnapps which was drunk! Moreover, when I got there the ceremony itself was very funny. Because I was ... just before it, was sitting in a row, next to me was President Kekkonen of Finland, and he said to me 'I shall watch you and copy you.' Well I didn't know what was going to happen, you see! And I was presented to my promoter(?) – the man who presents you for the degree – who was on ... standing on a pedestal about that high, so I was looking up to him, and I was unprepared for what would happen. The first thing was a long speech as you might imagine, in Latin, when I was handed a very big scroll, that big, rounded up – I didn't open it – with a big seal on the end of it, and I had to hold that. And then he placed a gold ring on my third finger of my left hand, which I still have, which had my name inscribed on the inside of it. And then finally a wreath of laurel was lowered on to my head.

JW Oh, really! I see.

FD And that in itself was ... oh, and I was told that the King was present and what I must do was bow to him, when it was over. Well, at the point of impact of this on my head, by some means a 25 Pounder gun was fired outside the Isle of Magna(?), you see! I nearly jumped out of my skin! Being the first one, being D, you see! And so I turned away, went down to the seat towards the hall, looking round for the King. And I bowed to the most magnificently dressed person present, only to be turned round rapidly to a man in civvies, you see! I'd made every mistake in the book! That was amusing. And also, I mean, it was the 500th anniversary of Uppsala's

foundation, so it was a great celebration. But it was full of comic things, because the Swedes are very pompous.

JW Mmm. Yes, yes.

FD Very pompous.

JW You didn't have to wear a sword though, there...?

FD No, but I was wearing tails and all the ironmongery you could think of throughout the day, which ... it feels rather odd, you know. And ... but I was entertained, or we were entertained, because Barbara was with me, by one of the student nations. They divided into the four – north, south, east and west nations. And that was an evening to remember, because in this högtid(?) I found myself standing on the table, leading them in [*On*] *Ilkley Moor Baht 'At!* Which they didn't know, of course! It was great fun!

JW Oh good! Now, in fact then, you've had many other honours too. It must have, did it come as a surprise to you when you received the first of the letters from Number 10 which said that 'I've been asked to let you know, in confidence, that...' – the one when you got your knighthood?

FD Yeah, a great surprise.

JW Was it?

FD A great surprise, yes. The plain fact of the matter was, throughout my life I've been far too busy to think about these things, and so it has been a surprise whenever these things have happened. And it's not that one is, how shall I say, wanting to pretend that. Really I was just too busy.

JW Mmm, mm. And then of course you went, with Barbara, and family. Now we've said nothing more about your family. You said the first child was born in Cambridge.

FD Yes.

JW How many children have you?

FD Three. Well, we had one that didn't come to full-term. But we have three.

JW And what are they all doing now?

FD Well, John is a nuclear physicist, a high energy particle physicist, planning experiments for ten years from now to be done in Texas. He's on the staff of the University of Liverpool, and of course feeling a bit beleaguered at the moment, because it's big science and can we afford it, the government, and so on. But that's his work. And that's that. Unfortunately no children, but that's ... and because of the curiosity of this country, if they wanted to adopt they're now ... well his wife is just under 40, he's just over 40, and it's very difficult to do that. So there's no possibility.

The next one down is a doctor. She was here. She was a great athlete, and is also a very good musician. And she has two children, and is in Manchester.

JW What's she doing?

FD Medicine.

JW Yes, but what...?

FD General practice.

JW Oh general practice, yes.

FD I don't know how full-time it is because she's got these other responsibilities. And then third one is another physicist. John and Mary were both at Oxford. Then the third one Rosalind had nothing to do with the old universities for very good reasons and went to Bristol. But she's done a lot of travelling around the world, and is ... four years in Africa and various other places, and she's now head of, careers head at Shrewsbury Sixth Form College, and physics mistress and so on.

JW Good, good. And did you find the occasion when you went to the palace to receive your K a moving and interesting event? Even including the rehearsal?

FD Yes! Yes. I think we all felt a bit funny, because we were dressed up, you see. I mean, morning suit; well now, that was odd in it's own right. And the children were quite young. They were ... down like that, as it were. And we all felt very, very self-conscious. Well, they weren't so young, they were bigger than that but ... and I think we were glad when it was over. And enjoyed it, yes. And I remember when I got knighted I thought one of the things I wanted to do was to take them to the Royal Society, which is not far away from where we'd parked the car, and to show John Isaac Newton's signature in the Fellows' Book, you know, to see that tiny writing 'I Newton', and various other names like Robert Boyle, Robert Hook and so on. Whether it had any effect on him I don't know, but I think he remembers it.

JW Mmm, mm. Good. And when of course you got the much later letter, just a few years ago, about the House of Lords, that again I've no doubt came as a, as a surprise! What was your reaction to receiving that letter, from the prime minister herself?

FD Well it was very funny because as a matter of fact I'd been chairing a lecture of the Edward Boyle Memorial Trust, of which I'm chairman, and I could see that... We gave a dinner party afterwards in the Royal Society of Arts where it was given, and I could see my wife was, had some suppressed excitement. And so ... but I didn't know what it was. And then she said 'I've something to tell you.' And I couldn't guess what it was. Then we got on the train at Paddington, a very late train, to come home. And we were travelling second class I remember, and in one of those long ... compartment trains, and there was somebody sitting nearby. And I said 'Now what was it you wanted to tell me?' And she wouldn't tell me. She passed me across this letter, a small letter, you know. And I was dumbfounded, frankly! She wasn't! She

said 'I've always expected this.' And I was quite dumbfounded, because I had never hidden my views from anybody...

JW No, quite.

FD ...and I had been critical of the government from time to time. I'd been a founder member of the SDP, and so ... and I'd had a bit of trouble about that because I was then chairman of the British Library Board, and of the NRPB, and I ran into difficulties because the SDP published my name as a member of one of their committees without in fact asking me. And so this was going beyond what a person should do, holding offices of profit as they say under the Crown. So I was really quite surprised. And I had very mixed feelings about the Lords. I didn't know much about it. I inclined to regard it a little bit as a nice club as everybody says, an eventide home by the Thames, but in fact found it very interesting.

JW Very interesting, indeed. Did you actually join the SDP benches originally, or did you go straight to the cross benches?

FD No I didn't, because by that time I got ... this was ... five years ago, was it? Or something like that. What my wife said was absolutely crucial in this. She said to me 'You're unregulatable(?),' meaning by that, you know, I wouldn't take anybody's rule! And when I thought about that I thought it was an accurate diagnosis of me, and so I was a cross-bencher.

JW Who were your introducers?

FD Frank Kearton, who had been a scholar of St John's in chemistry, four or five years ahead of me. And Burke Trend who had been secretary to the cabinet, and with whom I'd become a considerable personal friend, when he had retired from secretary [to] the cabinet and company(?), and I was chairman of the Harkness Fellowship Selection Committee, and he came on to it. And we'd had dealings at various points of a confidential nature, and I'd come to like him and trust him and ... I wondered if he might do it, which he did very gladly.

JW You had an interesting interview, as we all do, with Garter...

FD Oh yes.

JW ...about the title. Tell us about that.

FD Well, that was amusing, because what I was quite clear of when I'd thought about it was that I wanted it not to be associated with Oxford but with Sheffield, because at the time Sheffield had gone ... a tremendous decimation of its basic industries. It had nothing much to cheer about. And, I mean it was a sense of gross self-inflation that anybody would notice it, but I thought it might be nice if people saw it was something to do with Sheffield. Well Sheffield was originally a part of Hallamshire, which is an area named in the Domesday Book, and still has... There's the Royal Hallamshire Hospital, there's the Hallamshire Golf Course, there are between 15 and 20 streets named Hallam Road 'Hallam Street' 'Hallam Close' etc. It's well understood. There's the Cutlers' Company of Hallamshire, also well

understood. And I thought Hallamshire would be the thing. It had a nice Yorkshire tang to it. So I went to see the Garter, and he was dressed better than I was, very much smarter, in this old building! 'What did I want to be, territorially?' And I said 'Well, Hallamshire.' And his first remark was 'Shires are reserved for dukes.' And that was my first put-down! And I ... 'Oh well, never mind!' cheerfully, and tried to be jolly, I thought it was to be a jolly occasion. And he then said, I then said 'Well, you know, give me a year or two, and we'll get that devised(?)...' And that wasn't amusing! And then he came round to the point that it had to be verified in the Ordnance Survey maps. And Hallamshire, which was on those maps when I was young – though it was never a modern administrative area, the name remained – has disappeared I discovered. So then I thought 'Well, the nearest thing to that which has an even more Yorkshire ring is Hallam Moors', which is an area of about, I don't know, about 20,000 acres, territory I know extremely well and walked over. It contains Stanage Edge, Stanedge Pole, Brown Moss(?) and so on, and was ... much of it within the city boundary. So that's how it came about.

JW Dainton of Hallam Moors.

FD That's right.

JW Right. And did he discuss with you the question of your robes for the introduction?

FD Yes, he did. And also the question, which I really was absolutely flummoxed by, it had never struck me, of being armigerous – bearing arms! That struck me as such an absurdity I roared with laughter I'm afraid, because I mean it was the height of pomposity I thought to do that. And so I just laughed that one off. Yes, the robes was funny. And of course the actual introduction ceremony itself, and the doffing of the cap, and the holding of the cap ... well, you know all about it!

JW Well, yes indeed. But it is, nevertheless it's a very moving experience.

FD It's a very moving experience.

JW Particularly for your family to be there.

FD Oh yes.

JW Were all of yours there?

FD Unfortunately Rosalind, the youngest of them, was out of the country at the time on some of her travels with her husband so she didn't get it. And she's yet to come to the Lords. But all the others were, yes. And that was very nice indeed. It gave me and Barbara very great pleasure. And since then of course we've made a lot of friends there.

JW Yes. And you've played a very full and active part, and I think the medical profession is particularly grateful for your, many of your contributions on the NHS

Bill²⁷ and human fertilisation and so on. And you already have continued your interest in medicine very, very effectively.

FD Well, I always took the ... when I got the letter, and then of course got the writ of summons, I began to realise that it wasn't really an honour, it was an appointment. And since it was an appointment there was a job to do, which is written out, you know, to give advice and counsel and whatever to Her Majesty and so on. So I thought 'Well, if you take it on, you must do that.' And ... perhaps it was the way I was brought up.

JW Well, I'm sure that that early part of one's life has an enormous influence on all of us.

FD Mmm.

JW After such an incredibly diverse and ... very distinguished career...

FD Oh, you say that to all the boys!

JW Not a bit, not a bit! You're someone of course who hasn't got a trace of pomposity and is absolutely marvellous on occasions as a debunker. But in your secret heart of hearts have you got any unfulfilled ambitions?

FD ... That's an extremely difficult question. I think one thing I would have liked to have seen more than anything else was both my parents sharing the success. And that has been denied to them. I think they would have been very pleased with it. But perhaps I can conclude by telling you a little story which happened this year, and if I'd realised it I would have brought along the thing. It was about March/April of this year that the registrar of Sheffield University handed me a mason's chisel and said did I recognise it? And I said 'Well, I know that's a mason's chisel.' And he said 'Well, look at it.' And it was all a dark brown colour, old rust, you know. And on the side of it were the letters 'G Dainton.' I said 'That's my father's. It must be. Where did you get it?' And it turned out that there was a firm, Charles Gibbs and Son Limited(?), that had been doing masonry work for the university for the last ten years, and was doing very well as a matter of fact with a turnover of about £2 million. And what happened was I think that the young Mr Gibbs – young, in his fifties – must have gone home with some piece of paper from the university with my name on it. And his father, Charles Gibbs, said to him 'That must be young Fred', you see. And so they wanted to meet me. And we did meet them. And Charles Gibbs turned out to be an extraordinarily nice person, so was his ... is his wife and son. And when my father died in 1930, my mother, who was a very very nice lady and used to be nice to my father's apprentices, decided that my father's toolbox should go to his last apprentice – Charles Gibbs – who was six years older than I. So he remembers me, and I don't remember him, you see. And he came to the house quite a bit, and saw it. Anyway, he became a master mason. And these tools which as I mentioned earlier had been used on buildings in Sheffield like the town hall and so on, and a mallet too with it, were treasured by Charles Gibbs, used by him on the newly-constructed city hall which I saw going up in the early thirties, on the extension to the Anglican

²⁷ Lord Walton is presumably referring to what became the 1990 National Health Service and Community Care Act.

cathedral and other places. And he conceived the idea that he was going to refurbish all these, build a marvellous oak chest and display case, and give them back to me. Now, that was a lovely gesture. And we've got to know them, and like them. And last summer, which again my mother and father would have loved, after the last degree ceremony, to which I invited them, which included the faculty of architecture incidentally so it was quite appropriate, we had a grand tea, just a small group of us, because they wouldn't like fuss, and some photographs taken of him handing this over, and these tools. And then we went round the city on a marvellous summer's day in a couple of cars, and he took me, and pointed out, and we were photographed at the extension of the town hall ... and a frieze, and he'd say 'Your father did that.' A very moving experience. And so there they are, part of the history of it. And in a sense it's the roots that at the end of the day you come to look at more than the future, perhaps inevitably. So I've nothing more ... I mean I've been extremely fortunate, I realise that. There are a lot of happy accidents in my life which many people of better quality have not had. And perhaps I could just say one other thing. When I was conducting a visitation to Leeds once, to Sheffield once, at the UGC, the taxi driver asked if anybody knew Fred Dainton. Well I was there, you see! This was a lad named Basford(?), who had got far more distinctions in matric than I had got. But he had to leave school – well, I actually left school temporarily but they got me back – and he had started as a lab assistant in the university, you see, and then ended up as a taxi driver. I'm sure he was more intelligent than I.

JW Mmm, mm. Well, there it is. But then it's not just intelligence; it's industry, dedication, application, and many other qualities.

FD Lots of luck.

JW And a lot of luck, absolutely. Being in the right place at the right time...

FD Absolutely.

JW ...and things just happening at that particular moment. Well, I think that we can only say that it's been a delight talking to you, and a great pleasure.

FD And very nice for me.

JW And to have had an opportunity of sharing just a little of your life history. I've no doubt at all that this is going to be a fascinating experience for others to watch, in years to come.

FD Well, very nice to be done by you, as they say!

JW Thank you very much! As I said when I saw you at Sheffield 'Very nice to be done by you!'

FD Yes, indeed! Yes, good!