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AN ORAL HISTORY OF BRITISH SCIENCE

Bernard Dixon

Interviewed by Paul Merchant

C1672/01

## **IMPORTANT**

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**National Life Stories**

**Interview Summary Sheet**

**Title Page**

**Ref no:** C1672/01

**Collection title:** 'Science and Religion: Exploring the Spectrum' Life Story Interviews

**Interviewee's surname:** Dixon

**Title:** Dr

**Interviewee's  
forename:** Bernard

**Sex:** Male

**Occupation:** Science  
journalist/writer

**Date and place of birth:** 17<sup>th</sup> July 1938,  
Darlington, County  
Durham UK

**Mother's occupation:**

**Father's occupation:** Sales assistant

**Dates of recording, Compact flash cards used, tracks (from – to):**

08/01/2015 (track 1-3), 19/01/2015 (track 4-6), 02/02/2015 (track 7-9), 18/02/2015 (track 10-11),  
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**Location of interview:** Interviewee's home, London

**Name of interviewer:** Paul Merchant

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**Recording format :** audio file 12 WAV 24 bit 48 kHz 2-channel

**Total no. of tracks** 14

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**Copyright/Clearance:** The following sections are closed until 2025: track 3 [10:52-10:55] and track 4 [25:37-25:39]

**Interviewer's  
comments:**

[Track 1]

*Could you start then by telling me when and where you were born?*

Born in Darlington, County Durham, 17<sup>th</sup> of July 1938.

*And, could you tell me as much as you can about the life of your father, and this can take in either things you know from direct experience or things you've been told about or things you're researched.*

Right.

*So, the story of the life of your father.*

Right. Oh his... I don't... I can't do his whole life story. I mean he was... I mean do you want me to start with his, what he did?

*Yup.*

He was an electrician. He was a terribly reserved guy really, and he didn't perhaps do as well as he might have done, not least in Darlington when he was offered a job of, offered the position of being a co-owner of a, an early radio, a radio shop, you know, later did televisions as well. And he had the opportunity of taking that up, which he didn't unfortunately, he should have done but he didn't because of his undue modesty really, he just, and perhaps lack of confidence. Lack of money certainly, but he could have borrowed the money, but he didn't do that. That was almost a paradigm of his life really, that he, he was very, a very cautious individual. But, I learnt an awful lot from him, not least obviously about electricity and about, I made... [laughs] Kath has just bought me this for Christmas. It's a, it's a crystal set.

*Ah.*

And of course the parts were... And of course I made this for real when I was, you know, when I was a child, long before people did things, at an age when people

wouldn't normally expect to be doing things like that, I was doing that, and learning about how to mend radios, and then later television, and I, I even, I even built myself a mechanical television, John Logie Baird mechanical television with a spinning disc, you know? 50-line scanning. I built one of those. And that was all, all of that was dependent on my dad really, the interest he engendered in me.

*What, what had his childhood involved, did you...?*

What was...?

*Did you learn anything of his childhood, where...?*

His childhood? Very little really. No, I don't know a lot about it. He came from a very large family. I think he was, probably dominated by some of his siblings, and, that's the impression I, I had. But no, I really don't know very much about his childhood at all.

*Did you meet any of the paternal grandparents?*

Oh yes, yes. Yes, my, his mother was the lady I used to call my Other Granny, because I was really fond of my mother's mother, she was my real granny, very warm and, empathetic sort of person. Whereas the, my father's mother was terribly bombastic really and, smelly. [laughs] And ruled the roost, and, to the extent that, I mean for example, you know, one of her, her youngest daughter, was made to stay at home to look after her. Typical of the day, you know, children had to, whoever got the short straw had to stay at home and not get married, and not get out and do things. So, that was, that was, I say that only because it was a reflection of her, of her, you know, very strong personality.

*And his, your father's father, did you...?*

I never knew, he had died long before.

*Did you learn anything about him through your father, or...?*

Not really, no. No.

[0:03:39]

*When you said that your father's decision not to take up the radio shop reflected the more general kind of modesty or, or reticence, what other things are you thinking about as reflecting that same modesty and reticence?*

Well, I mean this, this brings in my mother. My mother was the dominant partner by a long, long, long long way, she was really, she was so dominant as to be quite unpleasant really, and difficult with other members of the family, with anybody she met really. And so, any, any discussions about, holidays or about what we're going to do or, whatever, she, she was the person who decided everything, and he just shied away and, you know, hardly, hardly even contributed, because, she would sit on him and, she would get her way. So, that's really what I had in mind actually, and, yes.

*Can you remember sort of, specific instances of that, of, of your mother's relationship with your father being of that, an unequal kind?*

I just remember it being rancorous really, permanently really, and, him sitting at the meal table not saying anything; my mother meanwhile would be telling us, ranting on about what she thought about the world, and about everything that was going on in the world. It was that sort of situation. Very bizarre for me, because I was an only child, so, I didn't have any, [laughs] I didn't have any recourse to go and talk to brother or sister about what was going on. I got the measure of her really when, one thing I told Kath a number of times over the years, one day when I... I was, I was quite young, I was probably about, eight or ten, or something like that, and my, one of my uncles, her brother, called Jack, he suddenly said to me one day, he said, 'Your mother's a terrible woman.' And as a small child, that gave me, that told me that, it's not only me who feels that she's a, a difficult person, that here is an adult who is saying that to me. That had a huge impact on me, I suddenly thought, oh, it's not just me. [laughs]

[0:05:49]

*And, could you tell me about her parents, your mother's parents, including the, the favourite grandmother?*

Yes. Well, the, the... I never, again, I never knew her, her husband, my grandfather on that side. He, as far as one can recall, was, what's the name of the preacher in *Cold Comfort Farm*, who... He used to go to the chapel on Sunday evening and speak to the, what were called the quivering brethren, if you've read it.

*I haven't.*

Well he was a Methodist preacher, and he would go, and he delighted in, in making people cry, you know, delighted in getting them so worked up about hell fire, that... [laughs] So that was him. But that's, that's all second-hand, because I never met him. My, my granny was just a very very, very modest, very quiet, very genteel and gentle and, and, warm sort of person really. She, she didn't do anything, didn't go out to work or have any particular interests, but I just remember her with great affection. So not a lot to say in one sense.

*You said it was second-hand, the, the accounts of him as the Methodist preacher. And where did that come from?*

Well, bit by bit, out of my, out of my granny. But... And also from, from one of my mother's sisters as well who, through various channels, knew about this, and, he was... Clearly he was quite objectionable. But then, you know, in those days, people could, could be objectionable, couldn't they, particularly men.

[0:07:33]

*When your mother was at the, at the dining table holding forth about what she thought about the world, were there things that she tended to say on those occasions? In other words, is there some way of, giving us a sense of her outlook on the world, the sorts of things she might have...?*

Well the main thing would be her, her huge admiration for movie stars, particularly male, you know, actors. I mean, the great, one of her great interests in life was going

to the cinema. I never quite understood how it was that, although we didn't have a lot of money, [laughs] she could afford to go at least twice every week to, to the, what was then called the pictures. And she had, she was a member of, also, again, spending money on this, she was a member of various fan clubs, you know, movie star fan clubs, people like David Farrar. And, she used to... The one thing I remember her saying repeatedly to my father was, 'Now he's a real man.' [laughs] So that, that gives you a clue to the sort of relationship that they had. And I'm afraid that, that sort of stuff was a quite dominant theme of, as well as ranting on about shops and so on. We lived in a suburb of Darlington called Cockerton, and at one time or another she would fall out badly with every shopkeeper, and we would stalk out and never go again. [laughs] Until six months later you had to go back, because there were only two, only two butchers or only two, whatever. So, but that was, you know, she was very abrasive, a very very abrasive woman.

[0:09:07]

*Did you live in the same house throughout your childhood, or did you move?*

No no, we stayed in, yes, in Prior Street in Darlington, Cockerton in Darlington.

*Do you remember the house well enough to give us, take us on a sort of tour of it, describing it?*

Oh. [laughs]

*And if, if so, as you're going on this tour, if you notice, if you think of someone being in a particular room, you know, perhaps if your father tended to be in a particular space, or your mother tended, point that out.*

Yes.

*But, yes, if you could describe it for us.*

Well I'll tell you something about that in a moment. The house, it was a bungalow, a quite modest property, and, you know, it had a couple of bedrooms and a living room



and a kitchen, that was more or less it really. Not a lot to say about the, about the, about the, the house. One little story that comes to mind would be that, we were situated almost opposite a Roman Catholic school and church attached, and, one thing that as a child I remember vividly, wondering what it was all about, would be, at the time of the Corpus Christi ceremony each year, we would all have to sit in the window, in our, the sort of bay window of the house, and make fun of, laugh at, these people processing in the Corpus Christi ceremony. I didn't understand why, as a small child, why one was supposed to find this funny, but again it was my mother, and my dad just went along with it. [laughs] But that's one story specifically I remember, with some regret of course later, because I just felt it was a rather nasty thing to do, but, you know, that was her.

*So it was your mother who was encouraging you to all sit, the three of you to sit there and watch, and...?*

Oh yes, absolutely, totally, oh yes, yes. She decided everything.

*And what, on what grounds was she making fun of them, what, the way they dressed, what...?*

She just, she was just... Yes, the way they were dressed, and the incense, you know. And the little girls in front of the, the, what would you call, the priest, putting rose petals on the floor for him to walk on. [laughs] That sort of thing, she... But she was, she was very very opposed to religion, just, in an emotional way. She didn't have any arguments about it, didn't have any, I don't remember having a single discussion with her about the foundations of religious belief at all, nothing. But she just thought it was ridiculous, and... She was very very, very, very opposed to religion in any, any shape or form, and that was an expression of it.

*What other expressions of it were there?*

Sorry?

*What other expressions of it were there?*

Oh, I can't think of anything, anything else specific. Just, whenever the subject came up, on television or radio or anything going on, she would be very very dismissive and angry about it.

*In the absence of her having a kind of argument about it, did you come to any conclusions about the origins of this opposition to religion, or the, the basis of it, the emotional basis of it?*

Not really, no, I don't... No, I just... No I don't, I don't really know where it came from. And again, I know the, the person I mentioned earlier, my Uncle Jack, who mentioned the, when he said to me, 'You mother's a terrible woman,' he didn't know why she was so, so bitterly opposed to religion. I did ask him, and he didn't know either. She was just like that. She didn't... I think it might have been simply that, she disliked authority in any form, and, and she would have thought that, religious authority, i.e. a priest, was, you know, a spurious authority, a meaning... which is something I actually share [laughs], now. But, that was, I think that was probably where it came from.

[0:13:12]

*I see. Thank you. Can you describe your bedroom, what it had in it?*

My bedroom. [laughs] It had a single bed, it had a, it had a, a desk, and it had... It was a very small room. I don't know, not much to say about it. Why do you want to know that?

*Well, just, I wondered whether you had things, or certain things on the wall, certain things in your room that you played with, certain...*

Well, I used to do some of my radio stuff in there, you know. We had a, we had a shed in the garden and a greenhouse as well, both were used for that sort of stuff, but I also had bits and pieces in, in my bedroom. And I would, I would listen to a crystal set in the small hours of the night that I had made, and, those things used to sit in there certainly. And, also, the other thing in there, when I... I haven't told you about

learning to play the piano, but I also became very interested in, this is much later, in, in Scottish music, and I had an accordion. So my accordion was in the, was in the bedroom as well.

[0:14:23]

*At what age were you making the crystal sets?*

As early as I can remember. I mean I, I remember my mother, one little argument my father actually won [laughs], was him teach... he showing me how to wire a, a plug, a mains plug, you know, I don't know, I wasn't even at school, so I must have been, five or, less. And she thought that was a dangerous thing to do. [laughs] But he got away with that one. So that, I was obviously doing things like that at, even before I went to school.

*And for those listeners who, not only wouldn't know how to make one, but don't know what a crystal radio set is, could you describe what's involved in building it, and putting it together?*

Well yes, and fortuitously we've got this here.

*Ah, that'll probably be helpful.*

The crystal set, the crystal in those days referred to, literally a crystal that you dig out of rock, which was made of germanium, which is in here somewhere. Oh, I can't actually see the... Never mind. But it was a piece, literally a piece of, a piece of germanium. And it was, it actually worked as a, as a rectifier in the sense of AC/DC, conversion of AC to DC. But it, that gave it the capacity to detect a signal, a radio signal, radio frequency signal. And this, you know what this is, it's a coil, as you can see, but it was, the two key components of the set were the crystal, which detected the signal, the radio signal, and this was in effect a way of tuning, of finding the frequency you wanted. So, instead of going from, you know, Radio 1 to Radio, whatever, you, you would do it on here, and you would, you would have a range of different frequencies which could be tapped into by a piece of wire that you would, you would stick in at the appropriate point. It's all terribly crude. So that would be

like a, a condenser would be on a, on a radio or a, an early radio. You were just tapping into the... So you had a crystal to detect, then you had this to select the frequency you wanted.

*And this is a, is it...*

It's copper wire.

*...copper wire, coiled around a cardboard tube, very tightly.*

Yes, that's right, that's it, that's it. I used to use a, a toilet roll tube. Yes. Yes, that's, that's it. And then of course, something to listen with, there used to be headphones. We've now got a little earpiece. And of course, the volume was very very low, it was, it wasn't amplified in any way. That was the next stage, which I later learnt about, which is, required valves of course, or a valve.

*And is that something you did at home as well, the amplifier?*

Yes, oh yes. Oh yes, that's right. And then of course, when I began to part company with this stuff, was, when the, the crystal set, like this, was replaced by transistors, when transistors first came in, which was in a sense, doing a similar job to a crystal set but far more efficiently. And allied with valves and a battery to, you know, to amplify the sound, you could then begin to think of having a loudspeaker instead of earpiece. Because this was simply an earpiece, and that's, hence listening at two o'clock in the morning. [laughs]

*And what did you listen to once you had your first crystal set up and running?*

Oh any, absolutely, absolutely anything, absolutely anything. Music. Music particularly.

*And, this might be a naïve question, but did you have, this radio set, but also in the house another sort of, commercial radio set?*

Oh yes, yes. Oh yes.

*Oh OK.*

Oh yes. Yes.

*So it wasn't the only way to listen, but it was...*

No no no no, no.

*...a sort of, a way to listen that you had made yourself.*

That's right, yes. Oh we had a, oh we had a radio in almost every room in the house actually, yes, that's right. Yes.

[0:18:27]

*What did your parents listen to?*

Well, my father didn't listen very much at all really. But my mother, again, a strong influence, although I didn't recognise it at the time, but she was, it goes back to men again, she was a great fan of Italian tenors, people like Caruso and Gigli and, the big names of that time. She was interested in them as, as men [laughs], but she also began, she just began, she developed a love for the voice, the tenor voice. And then moving on from that to orchestral music to some extent, the popular classics and so on, that's, she was the person who would play all those, all that stuff. My father would never really show a lot of interest in that. He played the piano in a very rudimentary way. [laughs] But, she was the person who really, something I recognised years later, began to sort of, encourage my interest in, in music.

[0:19:31]

*And what did your father do in and around the house? I've got, I can see him at the, at the dinner table being quiet.*

Mm. Yes.

*I can see him sort of, slinking away during arguments. But I, I can't... What is he actually doing when he's not at work in a way?*

He used to spend as much time as he possibly could in the garden, i.e. in the shed where he did various, including electrical stuff, or the greenhouse. He even actually, even at one stage, he got so fed up with my mother that he, he set up a bed in the greenhouse and slept there, [laughs] slept there, in the summer. He did a lot of gardening. It was, it was wartime, and, you know, cooking your own vegetables, and keeping, we had hens as well for, for eggs. So... And, and... But again, the cruel part of this, it comes back again, a lot of my stories do, to my mother, we had rabbits in the shed, on one side of the shed was rabbit hutches, and, at one stage during the war, I don't know what age I... I would have been, five or six or something, and, I was actually made to eat my pet rabbit, a Dutch rabbit called Sarah. We were short of money, short of food and so on, and, so Sarah was, [laughs] killed, and, and we had to eat that for several meals, which I found... I found it very traumatic because my mother made fun of me when I was obviously upset. That, that tells you what sort of person she was actually. She was, she made fun of me for being, for being upset [laughs], which I can laugh about now but it was, it was quite, it was quite nasty at the time. Mm. So, you know, my father, as I said, he, he kept hens and rabbits and, growing stuff in the garden and all that. Until he developed angina and he, he couldn't, he was only in his forties when he, in fact he was 56 when he died, but in his early forties he developed heart disease, angina, and he was not able to, to dig any more. So I, I took that over, started doing the digging for him.

[0:21:41]

*What did you play with outside? I can, we know that you made electrical sets and that sort of thing.*

Yes.

*But, were there things that you played outside as a child?*

Not, not really, no. I had a succession of bicycles, I used to go off with friends, and... No, I didn't, no, nothing, nothing else I particularly remember. I remember being particularly interested in the, we had what we called the pond, which is rather a posh description of what in fact was the base of the old Anderson air-raid shelter, you know the old Anderson, corrugated iron, like this, and the base was concrete. Well we had fish in there, and I, I was quite interested in goldfish and other, other fish that we put in there, and, and I used to watch them growing. And I remember watching a, one day, again an interest in natural history I suppose related to this, because I remember one day seeing this thing crawling out. It had been a pupa of a dragonfly, and it crawled out and sat itself on the stone, and it shook off its pupal case, the case of the pupa, and this glistening, glistening dragonfly emerged. That was a, that was quite a moment for me. I didn't know what was going on really, but... And then it flew away. And that was, that was in the pond.

*This was a pond in your garden?*

Yes, in the garden, in the back garden, yes. Yes.

[0:23:07]

*Were there significant outdoor places away from the home that you visited? I'm thinking of things like parks and...*

Well... [laughs] Yes, you now come to the, the, the dangerous bit. I used to make bombs. [laughs] [talking to Kath] Am I allowed to tell Paul about making bombs?

KATH: Yes.

[laughs] I... Well, I was interested in chemistry, apart from the electrics I was very interested in chemistry, and had a, half of the shed eventually became my sort of, chemistry lab really, I mean, loads and loads of stuff. And, but I also used to make bombs. And I would take [laughs], take them down to the local park to let them off, which became known locally, and, and comments were made, and... [laughs] I never... I mean I didn't do anything with any malicious intent at all; I was simply trying out various explosive mixtures. And, I mean one thing that might amuse you

was, was, starting with gunpowder, which is made of saltpetre and flowers of sulphur and, and charcoal mixture, the three. And I, naively as a child, I went into the local chemist with a piece of paper saying, 'Can I have these please?' And I had charcoal, flowers of sulphur and saltpetre, I had them written down with the right proportions, [laughs] which the chemist obviously recognised. So I learnt from his response to that, which was basically, no, go away, I learnt from that that, what one did was, you got your saltpetre from one chemist and the other, you got each constituent from a different, a different chemist.

KATH: A good question would be, why didn't you get arrested, for doing very nasty things to little old ladies in their letterboxes.

*Ah.*

Why did I get what, arrested?

KATH: Why didn't you get arrested?

Why didn't I get arrested? No I didn't do anything... No, that's...

KATH: You did horrible things.

I didn't really. I mean... Well, a typical thing, a typ... No, I'll tell you, a typical thing that I did was, with a friend, became my best friend at school, this was at grammar school. And, so we moved on to Queen Elizabeth's Grammar School, Darlington. And with a friend, we used to do practical jokes. But they were quite innocent, I mean none of them were designed to be harmful in any way at all. The... [laughs] I think the one Kath is referring to was, we used to make things, [laughs] I don't know why, we used to make things and put them outside people's houses. I mean one was a... We'd stay up all night making our, almost like a, the basin of, like, you know, a hand, a toilet basin, a washing basin on a, on a stick, and put this washing basin, with a notice saying, 'Please wipe your, wash your hands before entering.' And we put, at three o'clock in the morning we put this in somebody's front garden. [laughs] Ridiculous, but that, that's the sort... And the one that Kath might be referring to was,



we, there was a young lady who I had fallen out with rather badly, and she, she actually lived with her grandmother, her mother was, well, she was absent. [laughs] So this girl lived with her grandmother, and... And what we did, we made a, she was called Dodds, and we made a shield, a wooden shield, silver painted, and then with gold paint on top we put 'Dodd House', because her name was Dodds. And then we, in the middle of the night, I was quite nocturnal in those days, we hung this on the, on the front door. And what actually happened next day, they lived in a, a road that had a Methodist church at the top, and all morning they became aware of people walking up to the church and sort of, tittering and pointing. And of course [laughs], this was what they were... So that, that sort of thing. Pure mischief, it wasn't done with any, any ill-intent other than just mischief really.

*Who did you let the bombs off with in the park?*

That was mostly by myself. I couldn't get anybody interested in, in, in bomb making, really. So I used to just go down there and do it myself, and... But again, I, I made sure there were, you know, no other people around. I didn't want to get caught, and I didn't want to hurt anybody, or indeed any dogs or whatever. So I, I took, you know, I did it, I think I did it responsibly. But I made some... When I discovered that... I mentioned the composition of gunpowder. Once I discovered that if you replaced the saltpetre, which is the potassium nitrate... Are you a scientist, science background?

*To some extent.*

Yes.

*But, but imagine the listener isn't.*

Yes. Right, OK. Well, saltpetre is potassium nitrate, and if you replace that with potassium chlorate you get a much bigger bang, I mean really, you know. [laughs] And I would, I would get, oh, a copper cylinder, and I'd run, you know, run this stuff in. Dangerously, I discovered years later, that, you can, it can self-ignite. Potassium chlorate, if you're using an implement to bang this stuff into the tube, it can self-ignite. It never did with me. But, that's the sort of thing I used to do, and it would

make a thunderous bang. And of course all the neighbours would, would hear it, and would complain, but... And my mother got a bit of a kick out of me doing that actually, because it fitted in with her, her sort of, angry view of the world I suppose. My father hardly knew I was doing it really. I didn't do, didn't do any of that when he was around.

[0:29:17]

*Where did the interest in doing it, and the knowledge of how to do it, come from?*

What, of bombs? Oh, I, I... Well, I think it came from, from, it came from the chemistry teacher at school really I suppose, because of the, I don't know whether you know about ammonium iodide, if you mix ammonia with iodine, I can't remember how to do it, but you get this brown stuff which, which, if you lay it around on the table, and it dries out, it becomes explosive. And that was, that was done as a, as a demonstration really in chemistry lessons. And I began to think, mm, I could do better than that, [laughs] I could make bigger bangs than that. I think that's where it came from, ammonium iodide. And then I just took off from there really, and, I got intrigued by the... Once I discovered potassium chlorate... I once cut myself, the only damage I did. I've still got a cut on there. Flying glass. [laughs]

[0:30:28]

*What else did you do in the shed, as well as making bombs, when you had this half of the shed to use?*

Well I, I did very conventional science, you know, chemistry experiments, making crystals, growing crystals was one of the great things. If you bought a chemistry set in those days, one of the things you were told to do was to make crystals, you know, growing, copper sulphate typically, you know, blue copper sulphate solution. And you, you would start in, with a, something for the crystal to form on, and then you would, you would hang the crystal inside a saturated solution of copper sulphate and it would grow more and more and more and more, and eventually you got the, you know, the typical, you know, the shape of a, of a crystal. And, I did quite a lot of that. But, the other stuff was very conventional really, typical chemistry of the things that you would, you know, you would then get in a chemistry set which you don't get any

more, you know, [laughs] nothing dangerous in a chemistry set nowadays. But, things were different then.

[0:31:34]

*And, what did you read as a younger child? So...*

What did I...?

*Yes, what did you read as a younger child?*

As a younger child. Well it... I mean, the first things I remember reading of course were comics, really, comics. I don't remember... I was discouraged from reading actually by my mother. I remember joining the public library in Darlington, the children's library, and finding a book, it was called *In Feudal Times*, and I said, this is what I wanted. And she said, 'Oh that's silly,' you know, 'you don't want that sort of book.' She discouraged me from, from reading actually. She discouraged me from doing homework at school, at grammar school. She would say, 'I don't believe in homework.' So I used I used to do my homework in the bus shelter, because she actually, not just, not simply didn't encourage me, she positively discouraged me, because she didn't think that schoolteachers should have the authority to require people to take, take work home. Bizarre but that's how it was.

*Did you get any sense at any point of where this kind of anti, anti-authority feeling came from?*

No, I don't, I really don't... I don't... It probably came from her ambiguous relationship with her father, who she obviously admired, but, but she obviously was frightened of him as well. I think there was an element of that. But, no, she seemed to, you know, react against any sort of authority or, you know, whether it was religious or it was politicians, or, you know? I haven't any Freudian or other psychological explanations. [laughs]

*No. So the comics, do you remember the comics that you read? Are they, do you remember them vividly enough to know which ones they were and what they contained?*

Oh well, yes, *Dandy* and *Beano* first of all, and then later... The ones I remember particularly are things like *Hotspur* and *Wizard* when I was a teenager, and then *Eagle* came along of course, that was the big, the big change, *Eagle* comic.

*Why was it, why do you say that was the big change?*

Well, it was... I suppose the other ones, which were all published by DC Thomson in Aberdeen – in, in Dundee, and they'd, they'd remained unchanged for so many years, you know, they were looking, even, even as a young reader, I began to feel they were looking a little tired. And, *Eagle* came along, and, it was a bigger page size, glossy paper, it looked brighter, better artwork, more appealing stories, and, it just had a freshness about it that the, the old ones didn't have.

[0:34:14]

*Thank you. What are your memories of primary school?*

Primary school?

*We will get to the grammar school, but...*

Yes. [laughs] [pause] I think my first memory, going back to my mother, it was my first, my first recognition of, of authority in the world, and that it wasn't my mother. My mother had been the dominant authority. And on my very first day I think, in the infant, you know, class one, Miss Tate, and, we had the morning, and then it's coming up to lunchtime, and, looking out, this was one end of the quadrangle in the school, and the school gate is over there, and I saw my mother arrive. And so I got up, I said, 'Right, I'm going now.' [laughs] And she said, 'Oh no you're not.' [laughs] And that actually for me was a great moment, a moment when I realised that, you know, my mother is not the sole authority in the world, that teachers are authority figures as well. I remember that vividly to this day, being told, 'No you can't go. Go when I

tell you, or when the bell rings.’ [laughs] Otherwise... Oh, I... I remember, as most people do, the difference between dedicated teachers and those who were, you know, going through the motions. [pause] I remember Mr, I think he was called John Thelwell, but a teacher who would, he would pick up something in the news, yes, something one might have heard about, and, instead of starting the lesson in a, you know, orthodox sort of way, ‘Today we’re going to learn about...’, he would pick up something out of the news. And this happened even more strongly for me at grammar school, I’ll tell you about that later, but, it happened very very strongly for me as a teenager at grammar school, teachers who related things to the real world.

[0:36:22]

*Were they, I mean, it’s perhaps difficult to remember at primary school, but were there aspects of teaching and learning that, that were particularly appealing, or that you remember vividly?*

Well it’s a thing I’ve just mentioned really, but that’s really leaping forward to grammar school, if that’s...

*Yes, sure. Yes.*

There was one particular teacher, he was called Mr Osborne, who was an English teacher, he would, he would never come in and say, ‘Right, we’re going to talk about adverbs today,’ or, ‘We’re going to talk about,’ whatever, Shakespeare. He would, he would come in with something out of the news. It was from him that I learnt about Khrushchev’s denunciation of Stalin. [laughs] A major, big, you know, very important speech, 1950-something. And, he came in and talked about that. And, you know, to think that the real world is out there, and... Nobody, no other teacher would do anything like this of course. Or talking about emotional music, you know, the heart strings, and the vox humana on the organ, the, the things that got people’s emotional interest in music aroused. And he always... Not, this was nothing to do with his English teaching, but it was stuff that he, that he would, he would talk about, he would start with very often, and then move from there into whatever it was he was really going to teach about. And he, he was, he was the origin of my lifelong feeling about clichés and, you know, you should always try to say something in an original

way; don't come out with banalities, and statements of the obvious. He was very very strong on that. Which I feel, to this day I feel very strongly about.

*Is this something he taught, rather than something that you noticed in him, this, this avoidance of cliché or this...?*

It was both really. I mean, because he, he used to say this when he was teaching, but he would also, he demonstrated it as well by... You know, he came in one day, typical example, he walked in one day, and he said, 'I've just spoken to Miss Cox,' another teacher, 'in the staff room, and I asked Miss Cox, "Is that a Wellsian bag?" What do I mean?' [laughs] And, I happened to know. And I said, 'H G Wells?' 'Yes,' he said. And, she had a shopping bag that he thought looked like a, you know, some sort of animal or something from another world, and... And that led on to a discussion about, about Wells and about the imagination, and about Wells writing stories which were really about a recognisable world but in which he might change his one... Like *The Invisible Man*, you just change one thing. Everything else remains the normal, but you change one thing. And that's skill, that was what, something I learnt about from him. Compares with Jules Verne who seemed to me to be full of, you know, 3,000 things every boy needs to know about, you know, lots and lots of, of detail and, you know, gadgets and stuff. Whereas H G Wells had the imagination. I'm going all over the place here.

[0:40:03]

*That doesn't matter, no, it's good. But, if perhaps we could just tie down when you started to read these kind of science fiction authors. When... The fact that you knew the answer to what a Wellsian bag was...*

Yes.

*...suggests that you might have read...*

I was... I mean, at that stage I, I wasn't actually. I might have given the impression I was a great reader of science fiction. I, I wasn't actually. Apart from Wells. So, I can't, I can't really tell you when I started reading anything of that sort. The...

[laughs] Going back to crystals. There was one particular thing I remember vividly well and that was, I was reading the *Eagle* comic one day when, and it was about, it was about some people in the jungle somewhere, and, this guy meets the man in this tent who, I remember the phrase, I remember him saying, because he had his radio on, the guy who was the explorer who was writing, he had a radio with him. And he walked into this tent, meeting somebody who he later discovered had been, was an Oxford graduate, but he wasn't expecting an Oxford graduate in the middle of a jungle somewhere. But, what this guy said was, 'I think you've got too much bias on the grid of your pentode.' [laughs] Too much bias on the grid of your pentode. He meant, on, we talked about crystals and valves, you know, a pentode valve with five prongs. And this, think of the grid which is in between the source of the electrons in the middle, the filament, and the other elements where the, the electrons were moving to, and in between was a grid, another metal, like a perforated metal shield. And you, you would have something called the grid bias battery which you would adjust so that you had the right level, so that it was interrupting the flow of electrons just as much, not more or less than you wanted. And that was hence too much bias on the grid of the pentode. I remember that vividly, because it came, it was so unexpected, in the middle of a jungle. [laugh] He then discovered that this guy was somebody he had met years earlier in fact, and had gone to Oxford and now, was now bearded and living in a jungle, and, I don't know where it was supposed to be. But, little things like that would, would, would hit me very strongly.

[0:42:36]

*There came a point, did there, where it was possible to borrow books from the library and to read them in spite of your mother's discouragement? There became an age when, that could be overridden somehow?*

Yes. Oh yes, yes, I think, I think I just gradually, [laughs] I started ignoring her, her feelings about these things. Yes, I, I can't tell you when that would have been, but I just began to be so impatient, and, yes, when she was being discouraging I, I thought, I'd just ignore it. But I can't remember when that would have been, really.

*But when it, when it did happen, you said that you weren't necessarily just reading science fiction books at all, although you were, you did read H G Wells, what else*

*might you have been keen to borrow from the library and to read when you did start doing so?*

Oh, the boys' stories of the day. Percy Westerman was my, and *Biggles*. [laughs]  
Yes, the, the standard stuff. I don't think I discovered or came across anything out of the general run. Those are the names I remember very well. Adventure stories really, *Biggles* and Percy Westerman, yes.

[0:43:49]

*Before we go further into grammar school, could you just describe it physically as a place? This is...*

Describe what?

*This is, Queen Elizabeth's Grammar School, Darlington. Yes, describe the, give us a sense of the, the kind of geography of the school.*

Right. Well, it was, it was a very, very solid, rather foreboding building really, with a clock tower in the middle which was out of bounds. Though with my friend, my practical joking friend, we used to go up there regularly simply because it was out of bounds. [laughs] It, it had a, I think, the impression I got really was, on the very first day was a very strong one, because we went into the, into the school hall, which was at one end of this building. It was, it got it... Queen Elizabeth I, you know, that's where it got its, its charter from, so it was quite venerable building. And in the hall you had these honours boards, you know these big oaken boards with all these names written in, in sort of gold, you know, gilt, whatever, with all the names of, what were called exhibitioners, people who had got exhibitions to Cambridge or Oxford, as well as, you know, they were either academic or they were sporting, honours boards, people who had won the, the school run. Every year the school had a, the school run, which, the entire school would run, cross-country running. Which I did get interested in. So, I mean just looking at... And, the impact of, to me on my first morning assembly with all the masters walking in with, you know, with their gowns, and these honours boards, you know, I, I was, I was initially quite intimidated by that really. Thought, what am I doing here, you know. [laughs] I shouldn't be here. I had that



very strong feeling for a while. It went away, but that was my first strong impression of the school. Yes.

*Were there other children from your primary school who had gone to the same grammar school?*

[hesitates] Yes, but none of my, none of my close friends. In fact again, one of the things I remember with great regret is how one... I don't think it was my fault, I think it just happened, that you, you just found yourself isolated from people who had been, you know, you'd seen every day at school, and suddenly they have gone off to the secondary modern school. I had been fortunate enough thanks to, thanks to Mr R A Butler and his 1944 Education Act, I was fortunate to, to go to grammar school. I wouldn't have, I wouldn't have, my parents would not have been able to afford for me to go to grammar school. But it did mean, on the other hand, that I was, I was one of the very few people from my primary school who actually did go to the grammar school. And, I was cut off from some of those people really, permanently, they went off to secondary modern, or the technical school as it was called, technical college, and I, I hardly saw them again really, not as friends anyway, see them in the street but we, we didn't meet and, socialise ever again really.

[0:47:13]

*How did...*

There is one thing I, I maybe mention here. Maybe we'll have a break and have some coffee in a moment, is that, you asked about school, but the other thing that for me, at primary school days that was important, was my local church, St Mary's parish church, Cockerton, where I was a, I was a server at Communion. [laughs] I wasn't a passionate believer in religion, but I, I, you know, my social group, circle, was such that, you know, other people went, so I went along with it, and we used to go. And for me, that was important in the sense of, again, music. The youth club at the church, and the amateur dramatic society, I actually, I, I sang in the, in the choir, in the dramatic, amateur dramatic society. And, also played the piano at the youth club. And those things were really quite important to me at the time.

*Shall I come back to those after coffee?*

Yes, sure. Would you like some coffee?

*Yes please.*

[End of Track 1]

[Track 2]

*Can I ask about your, your own churchgoing or relationship with religion? We've heard what your household was like I suppose led by your mother, but what was your experience as a child of religion?*

Religion. I, I don't think I was made aware of religion at all really, I didn't... until I joined, I started going to St Mary's parish church in Cockerton. And the reason for joining there was, it wasn't a religious belief or a conversion or anything of that sort; it was simply friends going there. Plus, a strong interest in the music, and they had an amateur dramatic society, and I, I used to sing in the chorus and one or two small parts in things like *The Mikado* and *Princess Ida*, Gilbert and Sullivan. And, that, that's really... Then I, I got dragged into being a server at Communion, which, my job was largely to count the number of people who were going to take Communion on one side of the, of the altar, and then I'd count the people on the other side and add them together and whisper it to the vicar at the appropriate moment [laughs], so he'd take the right number of wafers out of the box. That's about all I remember about it really. I wasn't dedicated at all. What I remember vividly, clearly, was, when I decided that, really, I don't think I believe this stuff. I was purely nominal in my belief anyway. But when I began to have doubts, I remember, we had a new vicar, and he, he put a lot of people's noses out of joint by, he sent a letter to every house in the, in Cockerton, in the parish, saying that, even, even if you are not a member of the Anglican Church, or whatever, every household in Cockerton owes a support for the church, to St Mary's Church, as part of the, the established church of the country, and it's your obligation. [laughs] He sent, he sent this to everybody [laughs], which caused outrage. And I thought that was a bit weird as well. But then, the thing that really got me was, I was enjoying very much the amateur dramatic society, taking part in their, their productions. And one day I, I mentioned to this, I've forgotten his name, this new vicar, that I was having certain doubts about, about, you know, the Christian story, and about God, and, he, he was outraged, he reacted so angrily. He didn't talk to me. He didn't listen to me. [laughs] He, he got very very cross. And, I think there and then, or very shortly after that, I decided to leave, and, which was a bit of a wrench because I was leaving behind something I enjoyed, you know, the amateur dramatics and the, and the youth club and friends. But I thought, you know,

this is, this is not good, if he won't... He's not willing to talk to me at all, answer questions. So that was, that was very bad, a bad day.

*What were the doubts that you were experiencing then that you hadn't before then?  
The doubts that you wanted to talk to him about.*

I mean my, my belief up until that point was, was purely nominal really, I wasn't a, I wasn't, I hadn't really thought much about this stuff. But I was beginning to, I was beginning to get interested in science, and becoming aware that there, there are two, or at least two, you know, different interpretations of, of life on Earth, of human life and its significance or not, whatever. All those things were beginning to whirl around in my brain. And what little I was picking up from, you know, reading and television programmes like *The Brains Trust* was, there were clearly two different perspectives here, at least two. The two that seemed to me to be head-on in conflict with each other, either human life has innate significance and purpose and direction, and that is illustrated by the Christian story, and of course by others, other stories from other religions, or, life evolved, evolved essentially on the basis of accidental, random, purposeless movements of, of atoms and molecules, and of course of genes, when one got round to the genetics of this and the way in which genes are, genes mutate and genes recombine and, and genes are sorted, mixed together in, in reproduction and all of this. And this seemed to me to be completely random. I, I had to say then, and really I continue to feel, that both of these two accounts are incredible, equally incredible: either you have a creator who created everything, or you have this origin and development of life on the basis of random accidents if you like. Both of these positions seem to be very very hard to take. [laughs] And I, at one time I actually, I, I thought I would write a book actually in which I took these two views, and, you know, went through the, the evidence, so on, and the, the claims, and, and then try to resolve it, but I never, [laughs] never did.

[0:06:09]

*Thank you. You mentioned The Brains Trust. That might help us to date when you think you first started going to St Mary's Church, and when you left, just to give us a...*

Well... [pause]

*Roughly.*

Yes. Well, we're talking about my teenage years, we're talking about... [pause] Oh. [pause] It might have been, towards the end of primary school, or, very early grammar school years, when I started attending. [pause] I'm thinking about one particular friend, but he was at both schools so that doesn't help us. No, it was, around the age of ten, eleven, something like that, I think, probably. As for when, when I began to... I, it wasn't many years later, probably about, might have been about fourteen or something when I had this very unsatisfactory conversation with this, with this new, new minister.

*You mentioned The Brains Trust. When did you start, you know, when did you get a television, and what else did you watch on it?*

Oh, well, again that brings me back to my, my father, who actually constructed our first television set, which was a lot cheaper than, than buying one. And, when would it have been? It would have been... I know a lot of people got a television in for Coronation, which was 1953, wasn't it. 1948, the London Olympics were on television. So, it would have been somewhere, 1950-ish I think, when my father laboriously started making this, this television set, which, which was based on a, a sort of kit, you know, you bought the parts and you, you stuck it all together. And of course my mother exploded when it, when the actual set exploded. It... [laughs] When she, when he first switched on, it went bang. He had done something wrong. And, we lost some money, I can't remember the details. I think, I think the cathode ray tube had gone or something, something quite, you know, quite major. But that, no, that would have been around about, 1950-ish I think. And I used to watch, oh, *The Brains Trust* was on, with Julian Huxley, who I recall very, very warmly really. He... There was a French nightclub thing called *Café Continental*, which I remember well. *Do It Yourself* with Barry Bucknell. [laughs] None of this means anything now, but... George Cansdale, the zoo man, he used to take you round London Zoo and talk about the animals. And that sort of thing. Yes.

*Are there particular things you remember from The Brains Trust, particular talks, things that they showed, discussions?*

Oh, I, I just simply remember, remember Julian Huxley as somebody who seemed to me always to have something, something unexpected, for me at that age anyway, something novel, something, some perspective on an issue of the day, but, I can't remember what any of them were but I, I remember feeling that, this is a man I want to hear more of.

[0:10:05]

*Thanks. Can we return to grammar school.*

Mm.

*We've heard about the particular teacher who was a teacher of English literature.*

That's right, yes. Yes.

*But we haven't heard anything about any of the other subjects yet, and how you responded to them and your experience of them. So could you tell us something about that? So this is grammar school, subjects other than literature.*

Yes. Well, the other main, I mean, Mr Osborne, Charles Osborne, was the, was one of the two main influences on me from grammar school. The other was a man called Thomson, 'Rusty', known as Rusty because his initials were RST, Rusty Thomson. And he was the physics teacher. And, again he had this, he had this way of walking in and saying something fresh, something interesting, immediately engaging. He walked in one day with a little magnet, a bar, you know, not a bar magnet but, a magnet with, a magnet, needle that, you know, bring a magnet, a bar magnet near and it'll, the needle will, will move. And he came in with one of these and put it down, and he said, 'Now when I was working on board ships during the war, I always carried one of these with me. Why?' No idea why. What he went on to tell us was that if you're, if you've got some electrical wiring buried in the wall there, yes? You can't see it. You've got an electrical cable. And if you bring this little needle, magnet, over there,

and if there's electricity flowing down there, it itself is creating a magnetic field, and so this will sort of, move. And if there's if nothing there... And that, he used this to trace, if he knew there was some wiring somewhere in the ship, he used it to trace the, where it was, you know, the route, where it went along there and along there. Again, that's using something practical and slightly interesting, you know, slightly unexpected if you like, to teach, you know, basic principles with, electromagnetic induction as it's called, you've got an electrical conductor with electricity flowing through it, it generates its own field round that.

*Mm.*

So that's the sort of thing he would do. And, he also was very flowery with his language. We used to keep lists of numbers of times he used certain words. [laughs] And he was just, he was just very, very, you know, entertaining as well as being, as well as teaching.

*What else do you remember about school science, in terms of content or, levels of interest?*

I remember, I remember a chemistry teacher who seemed to be, and I'm sure was, utterly bored with the whole thing. [laughs] On the negative side. [pause] You know, I just, probably most people have this experience of realising there were teachers and teachers, and, you got the inspiring ones who should be teaching. This was a guy who shouldn't have been anywhere near a classroom, it was a job. And that, in its own way, impressed, impressed me, because I thought how futile this is really, and, he just used to stand there reading out notes, you know, bored out of his, [laughs] out of his skull really. So that's a negative bit. And, the other one was a man called 'Bug' Allen, known as Bug because he taught biology. And he was, he was inspirational as well. He, he, I think he was probably the first person who made me aware of the, the relationship between whole organisms, you know, animals and plants and so on, and, and the genes that they, that their cells contain, and the way in which those genes change over time. I think that idea I got from Bug Allen initially. And then of course learnt a lot more about it later on with molecular genetics and, and DNA and all that.

*How did he teach that, do you remember how he taught that?*

He, he taught it really by... He would actually, he would actually bring in a, an animal, and, he would put it on the bench, and he would say, he brought a rabbit in once and he said, 'Now, how does this, how does this rabbit digest its food? Does it do it in the same way that we do it?' [laughs] And that led him on to talking about digestion, breakdown of, of protein and, and fat and carbohydrate in various parts of the intestine. And also led on to the discussion of the liver and what the liver does, and its, the liver's capacity to detoxify the body and clean, clean up the body, and the links between that and blood and so on. He would, he would actually invite us to look at other animals and work out, what about birds, you know, what's this white stuff that birds produce? All that, he was, all those sort of thoughts came from him initially.

[0:15:53]

*And intellectually, what was the sort of effect of grammar school, what, by the time you got to the end of grammar school, in what ways had your interests specialised and sort of focused?*

Well, it's a bit odd really because, partly because of Rusty Thomson and my father, my main interest really was, was in physical science. [pause] And in fact, at A level I did, I did physics, pure and applied mathematics, and chemistry. I didn't do biology at that stage at all. I'd done O level biology, but, not, I was very much on the physical sciences side of things. And I think it was probably subconsciously reflecting on things that Bug Allen used to talk about that made me, you know, become more interested in, in, in biology. However, my interest in biology was also redoubled one day, do you know, did I send in the article in which I told about my, my haemorrhage?

*No.*

No. OK. Well I was at school and I was... I'll give you... I've written a piece about it. I was in the sixth form at school, and one Sunday night I was getting prepared to,



to go out, go to a dance with friends, and suddenly I started coughing up blood. And it was really very nasty, very alarming. And, got a link here with H G Wells, because, I was having what's called a haemoptysis, that is a, a haemorrhage, up here somewhere in my left lung. And, I was in hospital for a while. It was thought I had TB, but in fact I turned out not to. That's what I've written about. It was just one of those things. But, you can imagine, this triggered off my interest in, what on earth is going on here, you know, and, and why did it eventually stop happening, you know, what have I been treated with? And, I have to say, a lot of, I got a lot of evasive answers, or whatever, partly because they didn't know. I was a bit of a puzzle, because I, when I was in hospital I... It's all in... I'll give you an article about this. This nurse came one night and said, 'That's your sputum bottle.' I said, 'What's that?' She said, 'I want you to put your sputum in there in the morning.' I said, 'What is sputum?' She said, 'When you cough up in the morning.' I said, 'I don't.' [laughs] She said, 'Oh yes you do.' [laughs] You know what I used to do? I used to spit in the bottle. Because all the patients in this ward I was in, they all had this honking every morning, coughing up this phlegm, and I didn't have any. [laughs] So I used to spit just to keep them happy. [laughing] But all of that put together really made me more and more interested in, in the body, in the human body and how it works. The link with Wells by the way is simply that, one of the most gripping passages I've ever read is in Wells' autobiography when he describes exactly the same thing happen to him, and the way he describes it, you know, is vividly real for me, for that reason, because I, I'd been there. But yes, so there, that really made me more interested in, in biological science, and, so that's why I decided to switch when I went to, went to university, and focus on biology, and particularly, because of the TB really I think, you know, particularly microbiology, you know, the, infection.

[0:19:38]

*Was evolutionary biology taught at grammar school at any stage? I know you said you gave up after O level, but, up to that point.*

Not, not in a way which I would, you know, I would use that label of evolutionary biology.

*Right.*

No, not really. No, I didn't, I didn't think much of that at all really at that stage. That mostly came from reading I think really, and, and of course university, the first, the first few years at university, which... The other thing I should say, just linking the two parts of the conversation, is that, I didn't really discover my, my passion for reading and learning stuff until I got to university. I had it at school, and mentioned a bit about that, but, I, I used to spend so much of my time doing this practical joking that I mentioned earlier [laughs], wasting time really, that I, I, I didn't really, I didn't really work that hard at school, you know. It was really in my first year at university I got very, very, very hooked on, you know, learning stuff, and, thinking about it and reading around it. But it didn't come until my first year at university.

[0:20:57]

*What was your... We'll go, father and then mother. What was your father's view of your, sort of university ambitions, of your, your wish to go and your interest in that?*

I, I really don't have any, any very strong memories of that at all really. I suppose he was pleased that I'd gone to university, but, I don't think we talked about it much. He was, he became ill as well, so, you know, he, he had a kidney problem and had a kidney removed, and he had his angina, and so on and so on. He died when he was fifty-six. So I suppose those things really meant, one reason why we, you know, scarcely talked about, about university. I mean I was in my, what, first year, or second year, when he died.

*And what was your mother's view of your, of you going up to university, if any?*

[laughs] I, I... Well again, I suppose she was probably pleased about it, but, she...

[0:22:16]

[pause] Well I had... I mean, the other thing I haven't mentioned, which is going back a bit now, but my teenage years were really, the other thing I did was to, to run a dance band, a Scottish, Scottish dance music, Jimmy Shand. [laughs] And that, that really became a big passion for me. And, she... I had this traumatic moment when I had my band in the house, used to come home to practise, and she used to come in and try and dominate the... She, she wanted it to be her circle. It wasn't her circle of

friends, it was mine. And we had a bit of a blow-up about that, and, and never, never practised at home ever again. We used to hire a room to practise. [laughs] But the music was very important to me, very important indeed.

*That seems a very specific interest that had developed, in Scottish music. How...*

Well it was, it was a development, it followed on from interest in music generally, and then, and I, I heard, I heard Jimmy Shand, who I later got to know. And I remember having two contrary views about Jimmy Shand's music, one was hearing this stuff and thinking, gosh, isn't that boring. [laughs] Really, chang chang chang. You know, very, you know, nothing ever changes, it's very dull, repetitive. And then one day I heard him playing by himself solo, and realised this guy, I mean he, he really, he was a real musician. I got to know him years later. And, to do what he did with a rather primitive little accordion with what are called grace notes, do you know what...?

*No.*

Ornamental... Well, you've got a tune of, dum-de-dum-de-dum, but you've also got these, called grace notes, very very brief notes, they're called ornaments musically. You hear them on the bagpipes, if you listen to bagpipes you hear the, the tune going, but you've got a lot of other little bits going on in between, and they're called grace notes. They're used in classical music as well as traditional music. And it was when I heard that, I, I realised this, this guy's a real artist, you know. And of course part of the explanation of the, of the boring, impression I got from, from his band on record was, the very very poor recording, you know, that was used then, 78 rpm records, and, you had the impression, in fact it wasn't an impression, it was real, that this thing had been recorded with the band at one end of a hall and you'd got one microphone here, [laughs] and you'd got no mixing, no balancing, nothing. You'd just got this, this noise going on. So, that was part, that was a really important part of my learning about music, you know, getting my, my knowledge of Jimmy. And then, that led me to think, I want to do this, and bought myself an accordion, and, and then set up a band.

*So you were playing the accordion. And what would the other members of the band be?*

OK. Accordion, fiddle, piano, bass and drums.

*And how did you organise this, how did you assemble the band? Are they school friends?*

Yeah, well, yes, started with friends, and then, you know, [laughs] then you drop people who you realise are not very good, so you drop them and find somebody else. An accumulative process. The fiddler was somebody, my oldest friend who died some months ago, he was the fiddler in the band. And, the pianist also was quite an old friend from school. The others were sort of, you know, I just went out looking for them, persuaded them that they were, they might like to try this sort of music.

*And did you play, you know, play publicly?*

Oh yes, yes, we played, yes, played in, lots and lots of dances, and annual balls of the Royal Scottish Country Dance Society type of things, and, we did, we did broadcasting and recording. Yes. [pause] And then later I, well, while I was still running my own band, I, I got to know somebody called Andrew Rankine who had a, one of the top bands of the time in Scotland, and I started playing with him as well. I played piano with him. [pause] And we did, as I say, we did recording and broadcasting.

*How had you learnt to play the piano? Had you been to lessons?*

Oh yes, yes, I had been, I didn't mention, yes I had been to lessons, yes. Starting when I was still at primary school, started in. And, a, a quite, quite, quite a good teacher I would say. She used to have this irritating habit of eating an apple rather noisily while I was playing for her, but, apart from that, she was... No, she was a good, she was a good teacher. And then she gave up. A little thing I discovered about musical snobbery here, because she gave up, I can't... Well she had, she had children, so she stopped teaching. And my father I think found a new teacher for me, who I

went to see one day, she would decide whether to take me on or not, and she said, 'Well, can you play by ear?' I said, 'Yes, yes.' Because I could. That was in a way a problem, I could play by ear, but it's better to learn properly obviously. She said, 'Well play me something.' And I started playing something, I started playing a tune called *Jubilee Rag*. Rags were all the rage at the time, *Twelfth Street Rag* and *Jubilee Rag* and *Coronation Rag*, and, played by a woman called Winifred Atwell? Yes. So I started playing one of these, and she said, 'No. Not that sort of music. [laughs] Play me something classical.' And she had this, what I think is a really silly view, that, you know, classical music is the only serious music, the only music that can be played well, or indeed played badly, which I think is, crazy, you know. So, I didn't go to her. [laughs] I found somebody less snobbish.

*Did this interest then continue after you had gone to university?*

What, the band and the playing?

*Yes.*

Oh yes, yes. Yes, yes, oh yes, well it continued, well, no, it went on until, until my, my friend, I mentioned Andrew Rankine, he, we continued playing, and he, he eventually went off to the States, and, and that, that brought that band to an end, and that pretty well brought my playing to an end, although I still did odd things, but... Yes, a big part of my life actually for quite some years.

[0:29:30 ]

*Thank you. How did you decide which university course to do, and which university to do it at?*

I ought to say, oh, I looked very carefully at this and consulted widely and decided, blah blah blah. None at all, none of that. Because, I was spending so much time with my band and with practical joking and all the rest of it at school, that I really didn't give this matter the attention I should have done. So, what happened was that for people at Queen Elizabeth's Grammar School, Darlington, prefect's badge, the, if you like, the sort of, I can't say it was a soft option because it wasn't that easy to get in,

but it was, the obvious thing to do was to go to what was then King's College in, which was part of Durham University, but it, well it was the nearest. So... And probably quite important for me was the idea of getting home at weekends to play with the band. Whereas if I had gone to Oxford or Exeter or, wherever, that would have been more difficult. So, I think that probably was the reason. And I simply, I simply applied there, and, and got in, and, took it from there really. But as to what course to do, that was, as I've said, that was when I was, I had had my interest in biology alerted by my, my experience with my haemoptysis, but also it had been shifting anyway under the influence of Bug Allen, Julian Huxley on *The Brains Trust*, all those things probably came together really.

*And so, could you tell us then about the first year, the sort of, the content of the first year of the course? If you can remember it year blocks.*

Yes. [pause] Yes. I... [pause] Again, I became aware of the difference between different lecturers, the good ones and the bad ones, you know, and, I mean for example, one person who really impressed me was a man called John Burnett, became Sir John Burnett, he became Regius Professor of Botany at Cambridge years later. But he was then a relatively young botany lecturer in, in Newcastle. And, he was one of those people who talk to students, he was very open and, about, anything, he would talk to students. And he once told me that, he said, 'It's ridiculous isn't it,' he said... He had just arrived, and he said, 'Mycology is being taught here without any living specimens.' It was being taught by a man called Philip Fothergill, who was a, Philip Fothergill's main reputation in life was, came from the fact that he was a Roman Catholic and was highly regarded in Roman Catholic circles, but he was a, but he was a geneticist as well. And this was considered remarkable and interesting. But he, all his specimens, everything he taught from, was, bottles of, of specimens of different types of fungi pickled in formalin. And John Burnett, he was walking... I remember vividly, he said to me, 'It's ridiculous, I'm not going to have that much longer.' And he did... Actually, he was a mycologist himself, and he, he immediately started looking for sources, places where you could go collecting real, live, specimens, mushrooms or whatever, you know, other types of fungi. And he got that organised. And so we, [laughs] I was probably the first year of students who were actually seeing

real, real fungi, living, the real stuff, rather than stuff in a sort of, you know, bottle of formalin. So that was quite, that was something that really, really impressed me.

[0:33:44]

And the other thing was, I must say a word about a man called Meirion Thomas, who was a Welshman, Meirion, m-e-i-r-i-o-n, Meirion Thomas. He was one of the pioneers of plant physiology in the UK, you know, he did a lot of the work on looking at the biochemistry of plant cells and the various reactions that are going on in there, photosynthesis and so on. But, [laughs] he, he had no interest in botany whatever, in the traditional sense. He once said to me, you know, he said, 'I know the difference between a buttercup and a daisy, but, [laughs] not much more than that.' He was totally devoted to, to plant physiology. So, in a way this was, this was what I got out of the, what was nominally called a botany course, but it was the plant physiology and the mycology, the fungi, which then interlocked with my other department where I worked which was bacteriology. So these things came together, bacteriology, which changed its name to microbiology while I was there, and that was in the medical school, and that was all about infection.

*Was that part of the first year course, bacteriology becoming...?*

Yes. Yes it was, yes.

[0:35:05]

*And what did that, for, for listeners who might have, might only be guessing about what might be covered by that course, what did you study, do, in the bacteriology part of the first year?*

It was... Well, it was... It was, it was very medical, the department was located in the medical school, and I, I began to feel later that it was, a little bit too medical, to the neglect of non-medical microbiology, by which I mean things like microbiology of the soil, or industrial microbiology. But having said that, it was a good course. We had a, we had a fiendishly precise head of department called Ernest McMurchie Dunlop [laughs], who was so meticulous. The very first lesson when one was introduced... Do you know what a petri dish is?

*Mm.*

Where you grow, you put some jelly in and grow bugs in a... And he actually drew on, he drew on the blackboard, think of a side view of a petri dish, and there's the lid [laughs], and he actually drew one. He was meticulous. By reputation, he's only ever written one research paper in his entire life, but it was beautifully written. [laughs] But he was replaced by, by somebody who was in a different league altogether called Cecil Green. I'll show you something later that I got from Cecil Green, and, which relates to what I'm going to say, that, I think, students quickly pick up the excitement of lecturers who are real, they have done some real research, important research in their area, compared with those who haven't. And, Cecil Green was a person who ran a penicillin plant, very very early days. I don't know whether you know the story of penicillin, but, it was developed by, it was discovered by Alexander Fleming at St Mary's Hospital in London. It was developed in Oxford, at the William Dunn School of Pathology in Oxford. And the way they made penicillin in Oxford was by growing it in bed pans. [laughs] The reason for that being, they wanted a, a vessel to grow the, the fungus in, the penicillin in, that had a large surface area. So they went for bed pans. And that, that was very very early days. And a few years later a number of industrial companies came in to make it in, you know, large quantities. In between was a penicillin plant run by the Admiralty near Portsmouth, and it was run by Cecil Green, who, the name I mentioned just now. And I found that, you know, this is a guy who actually, you know, had a part in the story of penicillin. Very exciting. And I've got part of the equipment through there which I'll show you later.

[0:38:36]

*Mm. How then did the degree develop?*

How did...?

*If you can take us through the rest of the degree.*

How did it develop? Well I did a, I did a, a Double Honours degree, general, so-called General Honours, but it was a... And then I did an Honours degree. I'm a bit vague about it because the actual names varied from, they change from time to time.



Because, partly because, what was happening was that, what was originally King's College, University of Durham, became the University of Newcastle. So there were a number of changes in the, in the, you know, the names of various degree courses. But by my final year I had specialised in totally – no, my last two years actually, because my degree course was in fact a four-year degree, because I did this additional first year, to learn about biology. But the last two years were, were totally devoted to, to microbiology. As I said, you know, largely medical but with some of the other stuff as well.

*And then, at the end of the degree, you made a decision about what to do next, and what decision did you make and why?*

I was encouraged by a number of people to, to do a PhD. I could have gone elsewhere to do it, but I was perfectly happy in Newcastle. People like Cecil Green were inspirational. And my band of course, if I had... And of course, at that time, a lot of people went off and did their PhD, or their postdoc of course, in the States, but if I had done that, that would have taken me away from the band. [laughs] So, it was really those sorts of factors that kept me there, and, and I, I applied for a PhD, and I, which I did, and, and then a research fellowship afterwards, in the medical school where I... The project I was involved in was, was quite interesting, because it was, it was something, it was basic microbial biochemistry, which at the time was thought to have no, [laughs] no medical implications whatever. We now know that not to be true, because, I worked on a vitamin, one of the B vitamins called biotin, which is required by the human body in such vanishingly tiny concentrations that, you know, nobody ever gets deficient in biotin. So that's why it was thought not to have any medical implications. What's changed is that we now know there are a number of, of children can be born with a problem in, in actually, an enzyme problem that means they don't use biotin properly, so you can, a child can have this biotin deficiency for that reason. But, at the time it was thought not to, it was purely... It was related to brewing and one or two other, things of that sort. So that's what I did for, three, well eventually four years, because I got a postdoc as well, and, as well as doing the biochemistry and the stuff on biotin, I did some electron microscopy as well, so that was a, you know, something additional and complementary to do.

[0:42:15]

*When you say that you did this PhD, could you describe what you actually did, you know, so physically, what were you doing in the laboratory, if it was a laboratory, to conduct the research for this PhD?*

Right. Well, I suppose basically what I was doing was, growing, growing yeast, and, *Saccharomyces*, you know, which is known as both baker's and brewer's yeast. So I was, I was growing this yeast in liquid culture in flasks of medium. And, I don't know how much detail you want, but...

*As much as you can remember.*

Well... [laughs] Oh I can remember a lot. But mean, basically what one's doing is growing, growing the, growing the yeast, doing various things to it, in terms of the composition of the, of the medium in which you are growing it, and then, and then you are measuring various things. You put the culture into a centrifuge and spin the cells down, and then, you then measure various things, you know, various assays, various analyses on the, on the cells that you've grown, looking at enzyme activities, enzyme levels, or content of nucleic acids, or, whatever it might be. So you're basically growing this stuff, changing the culture conditions, or the, the chemicals that you're growing it in, and then you're analysing what that has done to change the, the behaviour of the yeast, the, the biochemistry of the yeast. Combined with, as I said, combined with electron microscopy, looking at, at cells under an electron microscope, where you are, you're taking the cells, you are bedding them into some medium in order to cut very thin sections, and then you're putting that under your electron microscope and looking at the structures inside the cell, and making deductions about what's going on, you know, in the light of what you've discovered biochemically. These things go hand in hand really.

*So if we take the first step, the growing.*

Yes.

*If you, if you can imagine yourself arriving at the laboratory, intending to grow some yeast that day, what do you actually, I wonder if you could take us through exactly what you do, where you go, what you do, what you do next in order to make that happen. For someone's who's never grown yeast of any kind, let alone this particular....*

So, so I arrive, I arrive in the lab and I go to the incubator where these bugs have been growing overnight, yes, in the flask, OK? And I take that, take the flask and I pour, pour the liquid containing the cells into a centrifuge tube, and I then go into the corridor and put it in the centrifuge, press the button, and it spins very very very fast. And, it concentrates all the cells at the bottom of the tube, yes? And then, you then do what I've just described really, take the cells and do various measurements on them, or you section them, bed them in a medium in order to look at them under the electron microscope.

*And, the looking at them under the electron microscope, is there a particular technique or set of skills in order to, in order to do that effectively? I can imagine you, you have to put them into a medium which allows you to cut a section through them.*

Mm.

*But then what do you do with that, slide is it, have you then got a slide?*

[pause] Well, you would use a, you would use a slide if you were doing light microscopy, that is a, you know, a bog standard microscope. You put the cells on a slide and look down. But with EM, it's, it's done within the, within this chamber. It's, you can't actually see it. What you see is a picture on, it's like a television screen, you look at the pictures on the television screen. And then of course you can take photographs of that as well. And then you do things like looking at, you know, have I got more lipid, fat, storage granules in here; does that match up with what I've found chemically about the lipids in there, is it a different type of lipid? And so on and so on.

[0:46:29]

*And what was the... You say that at this time there was not thought to be a sort of, medical context especially for this work.*

Mm.

*What was the, the context for changing the conditions in which the cells were grown and then observing them, what was the sort of question, or the argument that was being tested, or the sort of, the, the overall theory that was being tested, if there was one?*

Well you are, you are really trying to find out what, as with other vitamins, like, you know, vitamin C and scurvy, you are trying to find out what, what happens if cells do not have enough, if they've got suboptimal, they're deficient in a particular vitamin, in my case biotin, in the case of scurvy it's vitamin C of course. So you're looking at the effects of that. And like a lot of biology generally, I mean, you may say, well OK, I've already told you, there weren't any... I exaggerated a bit, saying there was no medical significance. People had been known to be biotin deficient, but, you, you're not going to study people with biotin deficiency, you study it in some other, some other type of cell, and that's what I was doing. You choose a, you know, like people studying cancer in mice, you're choosing something that you can breed and grow and deal with and, more easily than experimenting on humans. But it's the same sort of principle really. It's using... And of course, speed, you know, put cells in the incubator overnight, and you've got a culture in the morning. Or, in some cases I used to have to go in at half past ten at night, if I was growing cells and the timing was such that I just, the only way I could do it was by, [laughs] by going, creeping into the back of the medical school at half past ten at night, then I'd sort of, that's what I would do. Because you needed to grow these cells for a certain number of hours, and that's what that meant sometimes.

*And what were the findings in terms of what the effect on the cells of deficiency was? You know, the findings of your particular PhD work?*

Yes. Well, the main one was that cells, and this where the, the medical link comes in, that cells that are deficient in biotin, that leads them to be deficient in producing an enzyme called ornithine carbamoyltransferase, which is one of the urea cycle enzymes. I mentioned the liver earlier.

*Mhm.*

Well, the breakdown of, of protein and the by-products of protein metabolism in the body takes place in the liver, and one of the enzymes involved in that is called ornithine carbamoyltransferase, OCT. And that's... So the biotin has in effect a harmful, a deleterious effect on that enzyme.

[End of Track 2]

[Track 3]

*So, social life at university, and, taking in clubs and societies and, and that sort of activity.*

Yes. Well, I was, I was chairman of the Humanist Society in the university. I was a member of, I was on the committee of the Scottish dancing society, surprise surprise. I, I, I mean I didn't get heavily into the university social life, because I was, I was going home to Darlington most weekends really because of the, because of the band. So... I mean I did, I did a number of things, like, we used to have an annual folk dance festival in the city hall in Newcastle which I was the musical director for. [pause] What else? Not a lot of sport. I got... I, I haven't mentioned, the one sport I did get into quite heavily at school was cross-country running, initially as an excuse of simply something to get over Wednesday games afternoon fairly quickly, because by three o'clock you were in the shower and you, you were finished. But then I discovered I could do it, I could do it as well as some other lads who were, you know, known to be, you know, keen and able sportsmen. And that was a, that was quite a moment for me, when I realised that I could, I could run, and... I enjoyed it, I mean I, I picked it up in that sort of way, but I did actually begin to enjoy it. But I didn't continue with that, really, after I had had my lung problem I didn't, I didn't, that was the end of that really. I didn't have to give it up, but I was just too busy doing, doing other things I suppose at university.

[0:02:03]

*What was it about, for someone completely outside of it, what was it about traditional music and, and folk music, and folk dancing, that appealed to you, as opposed to anything else that might have grabbed your attention musically or...?*

Well, I mean I, I was also interested, concurrently, in classical music, and particularly piano, piano music. The traditional... I, I... It was, it was specifically Scottish, and it was, it was really to do with... I got interested in a number of things, like bagpipe music, and why do bagpipe, why does bagpipe music sound different from, from conventional? And it's to do with the... Are you musical? It's to do with the, the scale, the intervals between the notes. The bagpipes are slightly different from what

you would play on a piano or, you know, in a classical mode. And, as is Hebridean, the singing, I got very interested in Hebridean, Gallic, Gallic singing, which again is, it's based musically on what's called the Dorian mode, which is not the, not the simple scale that you are used to hearing, other, most sorts of music played in. So, I got interested in it in that way. But again, a lot comes back to Jimmy Shand, and just realising what an artist this man was, and, coupled with the thought about, the music teacher I didn't go to who was so snobbish about, about anything other than classical music, I mean I just began to realise that, you know, any sort of music can be well played or not. And I think, I think, the other main thing is, it's just the sense of rhythm and just the feel that I began to develop, that I could, I could sense people who were rhythmically, like watching people dancing, some have got inherent rhythm and some haven't. [laughs] And I just began to develop a sense of that which I found, you know, quite intriguing really. What is going on here? And the other specific musically is, Scottish dance music is, is necessarily very rhythmical and regular, because it's dance music, and it's got, you've got set figures and moves and so on. It's all a bit rigid in a sense. But on the other hand, if you listen to a Scottish fiddle player, playing a, a tune on the, on the violin, playing solo, not for dancing, and you realise that, that rhythm doesn't actually, doesn't mean spot on the beat, like that, you know. It doesn't mean that. Because sometimes people, you hear this in jazz as well, you hear vocalists doing that, they can be slightly ahead or slightly behind the beat, but it's still very rhythmical. It's very hard to explain, I find it quite, quite fascinating, what's going on, is your perception of the, of the rhythmicity of music, when it's not... You can construct a machine like a, you know, a fairground organ, say, that's very mechanical, very rigid, and absolutely spot on with the beat, but it's lacking in any sort of, appeal. It's lacking in... It's boring. So that, that's the other part of music that interests me.

[0:02:03]

*Thank you. Why did you join the Humanist Society at King's?*

Oh, because it seemed to me that, that humanists were on the progressive side of, you know, social, social change, of, they weren't taking rigid views drawn from any sort of doctrine or any book or any tradition or... They were, they were prepared to sort of, you know, and examples of this medically of course, do you welcome medical

advances, look carefully at possible repercussions of medical advances, or do you, do you, as happened in the past a number of times, people decide to oppose medical advances? And, so the humanists seemed to be on the right side of that. And, I, I was very struck when I, when I went to Israel, when I went to Jerusalem a number of times, and I, I discovered that, blood transfusion is something that is very very contentious and you can, you, non-religious people would be wholly, totally happy about blood transfusion, but even within, within Judaism you've got some hospitals where the rabbis control what goes on, and broadly speaking they are against blood transfusion, or, and transplantation. More modern, modernist or secular Jews are happy with these things. And I just found that whole thing really, really really weird, you know. So I, I always felt that you got, humanists on, on the right side of things. They might make mistakes, but, but basically they are prepared to consider advances and be, be, you know, be welcoming to things that were going to improve human life, human health.

[0:02:03]

*To what extent among academic biologists that you met and were perhaps supervised by, and, but also among biologists, undergraduates and postgraduates, was relations between science and religion discussed, or a topic for debate, informal or formal, at the time?*

Not a lot I would say really, generally speaking. I think an awful lot of people just, you know, they've got their views and they don't really want to get involved in arguing or discussing or whatever. So I, I don't think it's a hot topic amongst, amongst biologists really. [pause] That's been my experiences, mm.

*So it was your experience then, but also subsequently?*

Yes, and, I mean obviously things like Richard Dawkins's appearance had sort of, triggered off [laughs], a, a slight change in the climate, and people, a lot of people obviously don't like him because he, he can be abrasive. I mean my position is, I, I more or less agree with his position, his basic position, on this sort of stuff, but I, I don't always like the, the style in which he, he expresses himself. [laughs] And I think that's a pity. I think that has been counterproductive. I'm also rather puzzled



by, I mean people like Martin Rees, you know, Martin Rees, do you know, you probably, have you done him? Well Martin is Astronomer Royal, and he's a, somebody I've known many many years, and he, he goes to church. He doesn't believe in a personal god, he doesn't believe in immortality, he doesn't believe in any of these things, but he, [laughs] but he likes to go to church, and sit there, you know, enjoying the music and the, not just the music, the thoughts and the words and so on. And that I find... We had a Jewish friend at one time, again who, agnostic, thoroughly agnostic, but he, he, you know, he would sort of, sundown on Friday and he was, you know, he wasn't available. And he would spend, you know, he would do the Sabbath and do the, the, you know, the rituals, family sort of rituals and so on, and he'd take full part in that, but, he didn't, he didn't actually believe any of the, the supernatural aspects of it. I find that very puzzling, [laughs] I don't get it. Maybe I would if I was in that tradition, but I don't, I don't get it, I just don't understand. And I saw Martin Rees going to evensong. Don't get it. [laughs]

[0:10:31]

*Thank you. You haven't talked about your, your supervisor in your PhD work, or supervisors, your relations with them.*

Supervisors really, because one, one was, one was Cecil Green who I've already mentioned; the other guy, who was slightly senior to me but he was head of the lab, became, he came in while I was there [closed until 2025] was a biochemist, microbial biochemist, very... [laughs] This is where I have to be careful what I say. He was... Better not by name but, but I did learn from him, better not use the name here, I had learnt from him something about... He was very ambitious to be a great scientist, and I could, I myself could see that he, he wasn't, he wasn't going to be, you know. [laughs] He was perfectly competent, very, very energetic, ambitious, but he didn't have that, you know, he didn't have that spark. And I learnt from that actually, I thought, oh dear dear dear, you know, he's going to be disappointed in life. OK, he got himself a chair in a university, not in Newcastle, somewhere else, and he, he ran a, you know, an OK department, but he didn't, didn't achieve really what he wanted to achieve, didn't achieve much. His work was very pedestrian, you know, it was sort of, what sometimes is called shopkeeping research, where you're just sort of, like counting car numbers, or, doing a lot of, doing what... I mentioned Philip Fothergill

earlier at Newcastle. I mean basically, Philip Fothergill used to have students, and I told you about growing yeast and measuring, analysing it. Well, Philip Fothergill did this for years and years and years and years and years, and he would have, he would grow these fungi and measure things, and then each one, each student would be given a different fungus to work with. And then they would publish the results. And, the introduction to all their research papers was essentially the same, the methods were identical. And all, all that was different was, you know, how much nucleic, how much nucleic acid there is in the nucleus of this one compared with that one, and that one and that one and that one. And he was just producing lots and lots and lots of raw data. [section closed]. But... And of course, this is... Look, traditionally it would be called induction, you know, Baconian, Francis Bacon's idea of, of Baconian, of induction, which even Darwin, even Darwin, feeling he had to pay a tribute to, to Bacon, he says that, 'I worked on true Baconian lines.' Well he didn't actually. The truth is, he, as Peter Medawar pointed out, he didn't work on true Baconian. Yes he did some, you know, gather, counting car numbers or whatever it might be, or measuring lots of the... But he did more than that, because he, he was doing this... He had a thesis, a hypothesis, in mind, which he was testing, but, but he, he dressed it up as though it was simply, measure a lot of things, [laughs] and then sit back and see what you can see. Can you see any patterns? And I'm afraid that's what... I, I wouldn't know whether this is as common now as it used to be, but, a lot of scientists in the past would do that, including two people I've just mentioned, gathering lots and lots of data, and then, then we'll see what it means, if anything. [laughs] Whereas the clever thing to do is, as my hero Louis Pasteur, you just, you devise an experiment, and, it's got to be the right, you've got to put a lot of thinking in to devising the experiment, and it'll quickly give you a result. It'll say yes or no, or, whatever. That's the clever, the clever way of doing science.

[end of session]

[End of Track 3]

[Track 4]

*Before we move through your life story today, I'll ask some questions based on thinking about what you said last time, but, even before that, could I invite you to say something about your interest in evolutionary biology, which, though not taught at school, was to some extent, as you've just told me, encouraged by a particular teacher.*

Yes, it was Bug Allen, our biology teacher. He was the senior biology master. And, he was, he was one of these very accessible people, you could talk to him, and he was more than happy, more than happy for you to walk up to him and ask him things, and he would sit down and talk. And that's really where I got my interest in genetics and evolution from, which wasn't taught particularly strongly. I mean I, I remember the standard stuff about, plants and animals being fit for their environment, you know, the, the structure of the, of the plant or animal, would, would be appropriate for its environment and its life history. That was taught of course. But, the genetic basis of this and of evolution and the contribution of individual mutations to evolution wasn't really taught, as far as I can remember. But I think it, it probably was in fact, it was DNA, it was the Watson and Crick paper in 1953, when I would have been what, fifteen. And I remember very vividly going and asking about it. He didn't seem to know much at first actually [laughs], but, again, my impression, long, many years later. But I, what I, I was very impressed by, within a few days he actually came to me and he had a copy of the paper out of *Nature* by Watson and Crick on the double helix. So, that really, you know, we started talking about this and what it meant in terms of, of living things, and inheritance. It came just from conversation sitting on a stool in his, in his own lab, in his own classroom I should say, rather than from formal teaching.

*Where had you read or heard about DNA in order to go and ask him about it?*

I'm pretty sure that it was, it was from the, the *Daily Herald* newspaper. We used to have the *Daily Herald* newspaper, which was very political. It was a left-wing, a socialist newspaper. And also the *Northern Echo*. And I think it was the, the *Daily Herald* where I read about this. And I was hearing, I think, a bit on radio as well, so it

was around. And I didn't know what DNA was of course at that point, but, it was quite a seminal moment for me. There have been two seminal moments like that in my life, was, the other one, some years later when three researchers discovered the control of genes, how genes are actually regulated, and that was Jacob and Monod, and when they discovered the elements of gene regulation, in other words, why a gene doesn't produce the protein that it produces all the time without, you know, without any control. It obviously doesn't, but, regulated, they're switched on and switched off. And that was my other big seminal moment, which obviously was some years later.

*Approximately when was that?*

[pause] Um... Um... Hang on a moment, I can tell... Well, it was, it would have been... [laughs] Let me try and... I was doing my PhD, it was, so it... I can give you... I'll have to look it up, but it, I was actually, I think, my first year of doing my PhD when Jacob and Monod, who of course were given the Nobel Prize for that work. So it would have been early Sixties.

*Yes. Thank you. And was this an occasion, talking to Bug Allen about biology in various ways, was this an occasion to talk about science and religion, or would that not have been something that you talked to him about?*

Not at all, no, not at all. I have no idea what his religious views were, no. No.

[0:04:33]

*I was curious from last time to ask you how your mother and father met, whether you know how that...*

Oh. [laughs] I think there's a one-word answer, which is, motorbikes. They... From what I've said already, they didn't have any, from observation, any great natural affinity I would say; in fact I, I discovered affection in adults, in mums and dads, by observing other people, parents of friends of mine, I would observe the affection they showed to each other, which I never saw at home. So they were not, you know, showed, had no great natural affinity. But, my mother had a deep interest in

motorbikes. [laughs] And my father had a motorbike. So that's it. I mean he never, according to her he never, he never went fast enough, and, and all the rest of that, all the critical stuff came in. But I think it was motorbikes that brought them together. They used to go to motorbike rallies, you know, gatherings, days out that the local motorbike club would, would organise and so on.

*What was it that in particular your mother liked about motorbikes? Quite surprised.*

I don't know. I don't know. [laughs]

[0:05:50]

*Thank you. Now, one thing that I'd like you to describe, if you can remember it in enough detail, is, accessing the central clock tower at Queen Elizabeth's Grammar School. You said that sometimes you, it was out of bounds but you explored it with your friend.*

Yes.

*Do you, can you remember in your mind's eye that?*

Not, not much to say about that really. Just that, because it was out of bounds, it was obviously, [laughs] something that's forbidden is, is tempting.

*Mm.*

So we used to go up there and, well if we had a period off, you know, an hour between lessons, we would go up there and, and talk and look out of the window at... Nothing more to say other than that really.

*You could, you could actually go up inside it, could you?*

Oh, you could go up there, yes, there was a staircase going up. Oddly enough, the staircase was immediately opposite the headmaster's study, [laughs] but we were never spotted.

[0:06:42]

*Thanks. You said that as a child, picking up bits of science, you had the impression that science and religion were opposed. I wonder whether you know where that impression came from? You said that as you were picking up bits of science, it was clear that the two things seemed to be opposed, because one was purposeful, the other one random.*

Yes.

*I wondered where you got that from. I mean, one answer might be that, Huxley on *The Brains Trust* actually talked about that sort of thing.*

Yes. Yes.

*But, if not, do you know why you had that?*

It, it was really when I began to hear about Charles Darwin and about the, the revolution that he, he triggered off, and how it was in conflict with the established Church and so on, and, but how he, he tended to keep his, the obvious implications of his, of his evolutionary theorising, he tended to keep them rather quiet at home, because it, you know, his wife was religious, and, and so, he was somewhat muted. And, and then I heard about, I heard about the person who became known as Darwin's Bulldog, Thomas Henry Huxley, who used to take on all the public debates about religion, and its implications which were clearly against religious belief, although many people since have tried to reconcile the two, of course. But, it really was a head-on clash at that time, and it was, it was Huxley who went out and did all the, [laughs] the disputation, the public disputation. And I, I read, I got very interested in that, what had happened, around that time.

[0:06:42]

*Thank you. I've read your article on your, is it haemoptis, haemoptysis? What's...?*

Haemoptysis, yes.

*Yes. And, aside from what you told me last time, which was that this led to, or contributed to your interest in biology and in particular, sort of, medical biology...*

Mm.

*In what other ways did this sort of episode have an effect on you?*

Oh, I, I suppose it was one of those moments that tells you that life can be very short, and it, you know, it's very fragile, and, you know, but I mean I could have died. I wasn't aware of that instantly, but I gradually became aware that I had something that was very nasty happen to me, which could have been fatal. And so that, that thought began there, and went with me for many years afterwards. Mm.

*And could you expand on the different kinds of, what comes across in the article, the different kinds of sort of absurdity that you encountered while being treated?*

[both laugh]

*Or...*

Well, I mean underlying it all was this question, which I've discussed with other people from that same time who had the same experience of, not being clear whether I did or did not have TB, and the main absurdity of course was when I was required to provide a sputum specimen. I was given a bottle one, early days, and, a screw-cap bottle, and, the nurse said, 'That's for your sputum in the morning.' And I said, 'I don't know what you're talking about.' [laughs] Because I didn't, I, you know, most people with pulmonary TB, TB in the lungs, do actually produce a lot of phlegm, sputum. I didn't, probably because I didn't have TB. [laughs] And I used to simply, to satisfy them, because they used to get very cross, it was a very regimented hospital I was in initially, and, in contrast to the one I was in later, and everything went by the book, and everybody in this particular ward had to produce a sputum specimen, so to keep them happy I used to spit in the bottle and give them that. [laughs]

*And you, you seem to, to describe the, the sort of, your local doctor, almost in the same way as you describe, I think, one of the monks it is in the second hospital.*

Mm.

*So, you've got the doctor on the one hand saying, 'Oh suck ice cubes,' and then you've got these sort of, eccentric figures coming round in the second hospital.*

Yes.

*One who said things to himself like, 'Pale pills for pale people,' and that sort of thing.*

That's right, yes. Well he was... Yes. Well the first one was the GP, who, suck ice cubes, and I mean it really was, I think he probably was incompetent, because he came, I think three times, late, you know, late Saturday evening and into the early hours of morning, and didn't spot what any GP really should have spotted, what was happening. He thought I had a nose bleed. I was coughing up frothy, scarlet blood, and that is, that is only produced by a lung haemorrhage, a haemoptysis. It wasn't a nose bleed. So I think, I'm afraid he was really incompetent, and he would probably, well, face consequences nowadays; he wouldn't, he would have got away with it then, but... So, that was, that was bizarre. Are you wanting me to go on to the, the...

*If you could describe the...*

The other hospital?

*The second hospital you went to, which seems unusual.*

Yes, this was really, [laughs] a really weird place. It was called St Cuthbert's Hospital. It was just south of Darlington. It was essentially a, it wasn't a hospital at all, it was essentially a monastery run by the Brothers of the Order of Saint John of God as it was called. And, so a part of their, part of their activity was as nurses looking after patients in this hospital. There was a visit once a week from two chest physicians from a real hospital nearby, but otherwise you were in the hands of these,



these monks. And, what quickly became apparent to me was that they would disappear several times a day to go to the chapel to take part in the offices of the Catholic Church, and woe betide anybody who had any problem while they were away, because there was no help. I mean, you were, you were left. [laughs] Again, that wouldn't happen today, it couldn't possibly be allowed to happen. I mean some of them were quite jovial, and one man I particularly liked was called Brother Richard who told me very seriously one day about his deep interest in photography, and brought various, which, I was interested as well, brought some of his cameras and so on for me to look at. And then, a few, a week or two later he was telling me about, 'Of course we all take a vow here, and we none of us have any personal property of our own at all.' And I'm thinking, this is odd, this man, he'd bought a Leica and a Pentax, these are two quite expensive 35mm cameras. And, and then he later showed me his, his studio and his, his place where he processed his, did his enlarging. And cine photography as well. He'd got a huge amount of equipment. Only he used it, [laughs] therefore it was essentially his property. But, but he would say, no, it wasn't, it belonged to the brotherhood. [laughs] So I, I learnt things like that which were quite amusing.

[0:13:58]

*Thank you. You say that at the University of Durham, which was at Newcastle, the Newcastle site...*

Yes.

*...that it was considered remarkable that Philip Fothergill was both a biologist and a Roman Catholic.*

Yes.

*By whom was it considered remarkable/how did you know it was considered remarkable?*

Oh, well by people in the department, you know, because I, I gradually learnt to talk to some of the people who were then research students, and they thought he was, you

know, really quite weird. Because, none of them shared his beliefs, none of them shared his, none of them had, as he had, reconciled his science with, with his religious belief. I've got, I can show you, if you like, upstairs later, a review by John Maynard Smith of Philip Fothergill's book called, I think it's called Christians and Religion, or the other way around. I'll show you it later. And he... And, I can, I can dig it up for you. John Maynard Smith said, 'If I had any doubts about the, the appalling effects of religious belief on [laughs], on a scientist, this book has done it for me.' Because it's a book in which he, he tries, tries to reconcile the notion of Darwinian evolution with, specifically Roman Catholic Christian belief. In my view he doesn't make a very good job of it. But he, he was known, this is a thing he was known locally for in the local Roman Catholic hierarchy and the local Catholic community. He was, he was Dr Fothergill who believed in God, and he had a, a reputation built on that.

*Do you remember what in particular his research students would say?*

Well, I've got to watch my language here haven't I, but... No, they didn't think much of him. [laughs]

[0:16:00]

*Thank you. I wondered what the Humanist Society discussed.*

Oh, I, nothing, nothing remarkable. I think advances in, in medicine that were coming along, and, topics like abortion and contraception and so on and so on. As well as, you know, looking at other, looking at, not only Christianity but other world religions and their... I remember it was there that I learnt, for example, the peculiarity of the fact that you, you've got one major world religion, and you can have a particular variety of that, a particular sect of that, which comes with a personal god, or, and others that don't, and I'm talking of Buddhism, you can have Buddhism with deity and Buddhism without. Buddhism without deity, some, some strands of which are pantheistic, so they purport to see divine activity in the whole of nature. That's true. But a personal deity is, is not, it's not on the agenda for those particular sects of Buddhism. And indeed you're virtually encouraged not to expect, not, I mean, a lot of Buddhism about not, not hoping too much for the world, you know. And, in fact the only real Buddhist I've ever known was an advertisement manager who would spend

a lot of time working very hard to negotiate contracts, and he would come back and talk about it, and then he would say, 'But it, it doesn't matter.' [laughs] And so this, this very relaxed view of the world which is characteristic of Buddhism is something I, I learnt about way back in Newcastle by a Buddhist speaker who actually came along to the Humanist Society, we used to invite adherents of other, of particular religions and question them, and, he's the one who was totally impervious to any criticism, any, you know, implied criticism or, or questioning of his belief, he would more or less say, 'Well this is it,' and, you know, make what you will of it. But, he didn't want to engage. He was a very relaxed and very amiable man. And that was my discovery that Buddhism was, could be like that, in contrast to, you know, say, Islam or, or Christianit. It could be, very different.

[0:18:25]

*Thank you. And last question before we, we move on from where we got to last time, and that's, I wonder to what extent you'd be happy to talk about the effect on you of your father's death when you were at university, and then, related to that, if you could characterise the relations with your mother from that point onwards.*

Oh. I think my main reaction to my father's death... I mean I, was very very busy, I was a first year student at university, or second year. Second year I think. [pause] I'm just thinking aloud, because I was, I was in a hall of residence the first... No, it would be my third year, I'm sorry, because I was in a hall of residence two years, and it was the third year, when I was in a, in a flat. And he, he had become ill, and there were quite a number of different things, including the angina I mentioned. [sighs] I think my main feeling was that, I, I'm not the first person to say this, that I never really, really got to know him very, very closely, or had any real, really deep conversations about important things. I think that was my main feeling. And suddenly he wasn't there, I couldn't, I couldn't do those things.

*And the effect of it on your mother? I know, so you were seeing it slightly from a distance, because you were away.*

Mm. [pause] Well, I suppose what happened there was, because they'd had a terrible relationship, and she was quite devastated when he did die, and I think she probably

felt a lot of guilt over what, what had been going on hitherto, you know, about their, their past relationship. I'm being an amateur psychologist in saying that, but I, I think that's probably part of what happened. Because she, she actually became ill, she, she developed ulcerative colitis, which is an inflammatory bowel condition, well known to be associated with, with, you know, psychosomatic effects and depression and, you know, various things of that sort. So I, I think that, you could attribute it pretty... Within weeks she had developed her first symptoms of, of colitis, and that was probably why.

*And how, and, how did your relations with your mother, I suppose just briefly, could you characterise them from that point on onwards? You are now a young adult. From that point onwards, how does it all work?*

[laughs] It didn't get any better. It, it really remained the same actually, and continued to do so up until the years when she was, you know, she was becoming infirm obviously later, and when she got into her sort of, late seventies, eighty-ish and so on, and, wanted to come and live with me, and I took a decision... That was quite a tough decision to take, and I just decided, no, this is not going to happen. We had such a, such a bad relationship really that, you know, I'd do anything else but she was not going to come and live with me. [laughs] Sorry, not a lot to say about that really.

[0:21:46]

*Thank you. Now, last time we got to your, your PhD, you described the work of your PhD on biotin.*

Mm.

*I know that following that you, you, two forms of research fellow I think, two different sort of titles. But could you take us from your PhD, and just tell the story of what, what happens next?*

I think what happened next was that, that I was... I mean doing, doing, continuing to do science and doing the, what was then the standard thing of going off to the States on a postdoc fellowship, although those options were open to me, I didn't, to be quite

honest, I didn't feel that I, this was based also partly by comparison, well, it was based largely by a comparison with other people, that I didn't really think I had that, you know, that real spark, and determination, the spark of, you know, scientific creativity, and also the, the fortitude to go on and on and on studying something when you aren't getting very far, which I did see in one or two people. I didn't think I had those qualities. I think I was impatient really, [laughs] too impatient probably to, to become a really good scientist. I enjoy doing it. I've often thought actually that it might have been different because, techniques, laboratory techniques have changed dramatically, and things are much, much quicker than they were, so it may be I wouldn't have taken the same decision some years later. I'm not sure about that. But... But the other thing that was happening was that, contiguous with my feeling about, growing uncertainty about continuing in science, was, becoming more interested in science and society and science and the media in particular, which is of course what I eventually went into, that was growing, and I was, I was sort of, doing things like firing off articles to the local newspaper, which to my amazement they published [laughs], and even the *Guardian*. And so I began to think, oh well this is something that, a) I enjoy doing, b) which, maybe I can be quite good at this. So, that's, those two things were going together. And eventually I had to make a decision, and, fortuitously, I saw an ad one day for a, a new medical magazine that was going to be launched for GPs, it was called *World Medicine*. It was an offshoot of an American magazine called *Medical World News*. And this, in the UK, *World Medicine* was to be launched for GPs, it was going to be fortnightly for GPs, and it was going to, it was going to, it was often said that it was, people who set it up were aware that although the British doctors were members of the BMA, and they would get the *BMJ* every week, but, the number of, I mean, of *BMJ* copies with the wrapper, unopened, you know, that was very very common. GPs would get the *BMJ*, but they didn't read it. And, so... It was written at too high a level. It was a research, I mean it was and is essentially a research journal; it wasn't written at the right level to get material and new developments in diagnosis and treatment across to GPs. And that's what *World Medicine* was designed to do.

[0:25:19]

*Thank you. Before we get to World Medicine, could you say, who you were comparing yourself to in your assessment of yourself as possibly too impatient, possibly lacking spark, possibly not determined enough to continue in research?*

Well we touched on the lacking the spark last time. I don't want to name the name, [closed] I think, I've said this before, I mean he was, he was very energetic, very ambitious. He wanted desperately to become a great scientist, but he wasn't, he was never going to be. I used to compare myself with him. But I really don't want to... We can mention it without the name.

*Of course. Yes. I wondered whether you had the opportunity to compare yourself to other, sort of, PhD students around you.*

Yes. Yes, indeed. I mean, you know, again, I saw some of them doing, doing the very pedestrian sort of research. I mean in Newcastle at the same time that I was working in the medical school there were, there was a department in the chemistry department which was headed by Jim Baddiley, who became Sir James Baddiley, and he's the man who, although it was chemistry, he was actually bacteriology, because, it was Baddiley and his colleagues who discovered substances called teichoic acids that are part of the, the cell wall of a bacterium. And the, it was, this research was being done simply to, well, out of interest in these polymers, what they were and what their structure was; but secondly, by analogy with penicillin, which breaks down something else in the cell wall of bacteria, could you actually maybe design a drug that would, that would act on the teichoic acids and would break down the structure and could be useful in treatments. So that was in the background. But the thing about the pedestrian aspect is simply this, that, that teichoic acids differ in different bacteria, and so that, Jim Baddiley had a continuous drove of PhD students who would just, each be given a different, a different bacterium to work on, and their job was simply to analyse the teichoic acid in that particular bug. [laughs] And then, that's what they got their PhD for. It, it was a bit like counting car numbers actually, it was... It was important work, and it provided what any PhD ought to provide, which is research training, I mean, you know, it's part of the game, learning how to do research, but it was pretty dull really, I wouldn't have wanted to do that. So I saw that going on thinking, that's not the type of research I want to be, be part of. But, I mean I, I also

saw people doing things that were more... Albert Louis Latner was a good example. Albert Latner, who was working in the, the RVI, the Royal Victoria Infirmary, which was across the road from the medical school. And it was he who thought it would be useful to develop the rapid test to say, apart from ECG and things of that sort, to determine absolutely clearly, is somebody having or have they just had a heart attack? And what he discovered was... He was interested in enzymes, and in isoenzymes, that's different forms of the same enzyme, and in your tissues, in your cells, you actually, in some cases, have different versions of the same enzyme. And what he discovered by looking at these isoenzymes is that, they were released, certain enzymes were released by myocardia of the heart muscle, if you had a heart attack. And the pattern of those could tell you whether that really was a heart attack or not. And that was research that came out of, really out of pretty pure science really, just basic science, fundamental science, but it had a medical application. And I thought that was clever, because people used to make fun of him and say, what's the point of... You know, you want to know beforehand if you're going to have a heart attack; no point in, [laughs] in, in telling the patient afterwards. But he persevered with that, and it, it was, it was important work. Even one of my colleagues... Did I tell you the story about the psychrophilic, yeasts? It illustrates the point about our supervisor. Psychrophiles are bacteria that grow at low temperatures.

*No.*

And this would reflect obviously the proteins of which the enzymes are composed, and their structure and their, their stability, or not. And Tony... Sorry. My... [laughs] The person whose name I'm not going to mention, he discovered, he said, that, it's quite amazing, he said, you know, these psychrophiles, they can actually continue growing. Everybody thought it was cut off if you move them to a warmer temperature, a higher temperature, but they can actually continue growing. To cut a long story short, what he had done was, he had got the psychrophilic yeast in a flask, and he would measure their growth, and he'd put them in the, in an incubator at a slightly higher temperature, and then he would monitor the optical density which would tell you the growth. And, surprise surprise, you would find that they would continue growing. It was another PhD student, a man called Simon Stanley, who said, 'Hang on a bit. They've got to take a little while to warm up.' 'Oh no,' Tony said,

‘no, there’s a lag, there’s definitely lag effect when they are going to, the enzymes are going to continue working, even at...’ So Simon devised a simple piece of apparatus with a stirring, a stirrer in the middle, which ensured rapid heat transfer, and surprise surprise... [laughs] This sounds pathetic, but that was a good example actually of somebody with a little bit of, you know, a little bit of a brain working, and somebody who didn’t, who just did very pedestrian things. And that had a great impact on me.

[0:31:35]

*Thank you. Could you then describe this developing interest in relations between science and society.*

Mm.

*What form in particular was it taking? I mean we could imagine that this was highly political or not, or, based on very particular things.*

Yes. The books are up there. I mean it was, it was books really. J D Bernal, you know, the left-wing scientist at Birkbeck called J D Bernal, who wrote a book, and a man called J D Crowther, who wrote a similar book, which I can show you later, really, for the first time really trying to describe the relationships between, between science, scientific research, in an ivory tower or in a laboratory, with, with change in the world outside, with the developments in society, of ideas in society and of course practical applications of science. And all of that stuff, which is now utterly commonplace and, you know, every, every science student learns a bit of this sort of thing, but then it was, it was really comparatively new, not a lot was written or, or said about it quite honestly. That was where my interest came from, those. And Julian Huxley, whose name I mentioned, also, he also contributed to that, by writing about it. And, and, and J B S Haldane. So there were really three... The two main names would be Haldane and Bernal, who were writing about that stuff. Haldane in the *Daily Worker*, he was, you know, a member of the Communist Party, and he, he would write about it in the *Daily Worker*, and his columns in there were brought together in books that you see on the shelf up there. And that’s where it all started for me. Combined with an interest in, in the role of newspapers and magazines and media generally, for ulterior motives if you like. The scientific establishment was



becoming interested in, in telling the public what's going on in science in order to try and encourage people to think in terms of contributing to science in one way or another, either by electing politicians who were interested in these things, or by making donations to medical charities for example. So all of that was beginning to grow, and... A funny story about that, which is that, the, [laughs] like many universities at that time, the University of Durham, which it still was at this time, became the University of Newcastle, but this time it was still King's College within the University of Durham, and, they had never ever issued a press release, which sounds really bizarre now but they never issued one. It was beginning to happen around the country, and so, it was decided that Newcastle would start putting press releases out. So... [laughs] So, the first one actually was, they did it in a very simple way, they just notified different departments, physics, chemistry, and so on, that, we're going to have this system, and it's going to be done on a rota basis. [laughs] This is your month, and next month we'll go to the geology department. A weird way of doing it. And the first one chosen was in fact microbiology. And, the man whose name I mentioned the other day, Cecil Green, he, he told me about this, and said, he said, 'Would you be interested in getting involved in it?' I said, 'Of course.' Because he knew I interested in, in the media. So, so a lady whose name I've forgotten in the hospital drafted a press release, and I was shown it for comments, and it was sent out to the local media. The subject was, work that was being done by a man called Phillip Gardner, who worked on respiratory viruses in infants, in small, young children. And, there were a number of viruses, different groups of virus that were involved in causing, well could be quite serious infections. And so Phillip actually did a lot of work on, on the spread and epidemiology of these infections, how they got around and, and how they exerted their ill-effects and so on. A press release was published, was produced, and, the press release actually went out of its way to point out that these viruses had not been discovered in Newcastle, had been discovered elsewhere, but what was happening in Newcastle uniquely was that, with the hospital and, well two hospitals in Newcastle where these viruses were causing problems, that Phillip Gardner was studying the transmission of them, and spread, and epidemiology of them. And so the main conclusions were put in there. But it did emphasise that these had not been discovered in Newcastle. So, the press release went out. Two days later the *Evening Chronicle* in Newcastle, front page, 'Newcastle boffin has discovered deadly killer virus.' [laughs] And that really was one of the, you know, because we'd

all got examples of the media getting things wrong, usually because they're working so quickly, but that's one of the things that really got me more and more interested in this.

[0:37:06]

Another one which, which I read around the same time, I read one week in the *Sunday Times*, a headline saying, 'Scientists discover the cause of MS,' multiple sclerosis. And what, what was interesting about that was that when you read the story, it referred to some, a particular research group who discovered a virus that they thought was the cause of MS, but the story very carefully went on to say, 'But we need to be cautious, because, other viruses have been incriminated, suspected of being a cause of MS, but have turned out not to be.' So the story itself was written, you know, cautiously, carefully, but the headline said, 'Scientists find cause of MS.' So those two things I remember vividly, and, they really, you know, helped to get me quite keenly interested in the media and how it works, and how I could maybe get involved in it.

[0:38:01]

*Can you say more about the, the authors that you were reading who were for the first time pointing out relations between science and society, both from a very, from a very left-wing position.*

Mm.

*But I wonder whether you could say what was striking at the time, reading these authors, about the claims they were making, the examples they were using.*

Well, it, it was really simply that they were throwing light on an area that was simply, people simply didn't think about it. People were generally aware that you'd got scientists wearing white coats in laboratories doing, [laughs] doing experiments. And the fact that what they are doing in any sense at all reflects the needs of society or the views of society or the views of politicians and the, the paymasters who actually pay for this research, it was something, it simply wasn't exposed, it wasn't talked about at all. And, Haldane and Bernal did that. And of course, both, both of them were heavily influenced by the, what one would now call experiment on the Soviet Union,

where science was thought to be an important part of national planning, and that really hadn't... I mean in the UK, research funding had been conducted on the basis of what used to be called the Haldane Principle, not J B S Haldane, another Haldane, and this was simply, give them the money and let them get on with it. Because only scientists would know what were realistic avenues of research to follow. And, so it was, not exactly laissez faire, but I mean the Medical Research Council prided itself on this, you know, you, you had a research institute and you'd got a director, and money would be voted per, each year, for that institution and others, but no way would the headquarters, there was a Medical Research Council, but they wouldn't, they wouldn't direct research, the Government wouldn't direct... The Department of Health and so on, they had their priorities, but there was no very clear link, you know, between what those priorities were.

[0:40:33]

And of course that all came up, that came up very clearly in my time later at *New Scientist* in the Seventies, and it started... It became clear in the Sixties that you had two sorts of scientific research, what might be called curiosity-oriented research and what became called mission-oriented research. Curiosity would be the, what had always happened: scientists were interested in something, and give them the money and they'll spend it wisely hopefully and discover things. And the other was much, well, as with AIDS for example, good example, we have a big problem here with a new virus, newly discovered virus called HIV; we need to put money in to that, we need to sit down and work how to spend it, you know, in different types of research, whether it's molecular biology or, or epidemiology or whatever, but we need to be systematic about it. And that, I'm actually quite glad to have, you know, grown through a time when all of that was happening, and there were arguments about it. It, it was very much triggered for me, though, by Haldane, J B S Haldane, and Bernal, and Julian Huxley to a lesser extent, who focused attention on, on those ideas.

[0:41:53]

*What were, what was your sort of political outlook at this, at the time that you were reading these things?*

Oh, I suppose it was, old Left, old Labour, old Left. [laughs] We used to take the *Daily Herald* newspaper at home. My father was, was... My mother had virtually no

interest in politics at all except for the, the personality of male, you know, top, top name, top politicians, all male of course. Otherwise she wasn't interested in the ideas of politics. But my father was, you know, and, so I, I suppose, that's why we had the *Daily Herald*, I, I assume.

*Would your father talk to you about... You say that you tended not to have significant conversations with your father, and wished that you might have done. But, did he talk to you about politics?*

The only, I can remember only one occasion, ever, and he got very cross. Because like many people of his era, he had become concerned with the, the far Left in politics, and, I don't – you wouldn't remember of course, but the, there was a big issue to do with the management of the ETU, the Electrical Trades Union, of which he was a member, and there was a man called Fawkes who was ignoring the, the views of members, and, calling strikes without taking proper ballots and so on and so on. And, I mean, this was about the one, the one episode that I remember him talking about, and he took the conventional view, the sort of, old Labour view, Left politically but not too far. And these people were Trotskyites or people from a similar strand of the, the hard Left. And I remember one lunchtime talking to him about this, and I was a teenager, and I, I began to sort of pick up the notion from my early reading of Haldane about the management of science in the Soviet Union and the way in which social services were, were organised, you know, well organised, not, not on a random basis, but they were centrally organised, and people could get what they needed for... And all the rest of it. I had this rosy view which I had picked up. And I started talking about this, and my father got very very angry actually. [laughs] 'I never want to hear you talking like that ever again.' Because I was expressing what was unfashionable. I mean I was only a teenager, I didn't really know, but, I was expressing what was then considered to be highly the unfashionable view of thinking that, the far Left and the Soviet Union particularly had got, had got things right and we hadn't. That's the only conversation I remember with him about, about politics.

[0:44:52]

*How did your interest in and view of then the communist experiment develop from that point, from this early reading of Haldane, this abortive conversation with your father, and, how did that continue?*

Mm. I, I suppose like many people, I just picked up, you know, what was going on, and began to realise that, that all wasn't as rosy as we, as we were led to believe, and that there were some people, the dean of St Paul's, a man called Hewlett [Johnson] for example, went to the Soviet Union and came back, wrote a book saying it was all wonderful. And that was treated with scepticism, quite rightly. There was then the Lysenko episode when the central, the Soviet government, the presidium, decided that Lysenko... And this brings us back to Darwin of course, that you could actually train, he believed you could train cereals, various strains of wheat and so on, you could train them to withstand a more extreme environment, as, you know, they have in certain parts of the Soviet Union. You didn't need, you didn't need genetics. [laughs] You could simply train them to, to grow in the right way. It was, it was Lamarckism as opposed to Darwinism. And that of course, clearly was, was barmy, I mean just, it was just wrong, and for that to be centrally directed, and the Soviet government of course eventually realised they'd made a mistake, but it was a huge, huge episode at the time. I've got some of the books upstairs from that era. And, so those things affected me, I was reading about that, at a time when probably most people my age weren't, weren't interested at all in that, but I was, I was following that avidly. [laughs]

[0:46:59]

*Thank you. Could you then tell us about the, you said that you luckily saw the advert for the position at World Medicine.*

Yes, that's right.

*Could you...*

Yes.

*Could you... OK, just tell...*

If you're... Are you about to run out there? Because we can then go over to, have coffee and...

*OK, let's...*

Well, no, I'll give it a moment. I just thought you might be...

*Yes. No, it's fine.*

OK.

*Well, I'll ask you about the interview, and getting the job, and then we'll stop and then continue after.*

Mm. Yes.

*If you could tell the story then of the interview and, and, for that post.*

*World Medicine?* Well I was interviewed by a man called Donald Gould, who later became a very good friend, and a very very good writer, exceptionally good writer. He had been a professor of physiology at Barts in London, but he too had decided to go into journalism, and became editor of *Medical News*, a weekly newspaper for doctors, and then he had applied for this job at *World Medicine* and he became editor. And I was interviewed by him. And, it's really, I mean, I was delighted that he, you know, more or less there and then said yes. [laughs] And that was the beginning of a, of a, of a friendship that went on for many years, although it I'm afraid went a little bit bad towards the end. I'll tell you about that later, because that takes us forward to *New Scientist*. But it was, it was Donald and the ideas and the thoughts he had about the journal. As well as, I mean I wasn't sort of naïve about the business since of things. I, I was interested to know where the advertising revenue was going to come from for this new, what was going to be a glossy, quite a lavish, glossy magazine. So I did ask questions about that. And, I mean the short answer really was that the, the pharmaceutical industry was, was actually looking, [laughs] they were looking for a

vehicle like *World Medicine*, because as I've said, the *BMJ* not only wasn't serving its job for readers, it wasn't really providing... Well, if readers were not reading the *BMJ* in large numbers, then advertisers didn't want to be there, apart from classifieds, you know, job ads, obviously, at the back of the *BMJ*, hospital appointments and all the rest of it. But what we call display advertising, you know, corporate display advertising by companies, in this case pharmaceutical companies, really wasn't there to any great extent. There were a few what I would call rags, they were, were taking that advertising, but they weren't, they were not doing a very good editorial job. So in a way the time was absolutely perfect for *World Medicine*, both editorially but also in terms of providing an ad vehicle.

*You asked about this in the interview, about the revenue strategy?*

Yes.

*OK. And, did he at that, did he answer with a sense that he had a vision for that?*

I wouldn't say he had a vision. I think, basically he had, he had... He was, he was happy in his confidence in that aspect, because the, *World Medicine* was going to be launched jointly by McGraw-Hill, who owned the *American Medical World News*, and by IPC, International Publishing Corporation, in London. And, the publisher was a man called Graham Sherren, who was the son of a man called Veere Sherren, who had been for many years a publisher in, in various London-based magazine groups. And they were, they were between them, you know, Veere Sherren and Graham were very wise and, you know, about advertising revenue, and, and the whole scene there, and Donald, Donald was happy with that. So, if Donald was happy, I was, obviously I'm totally new to this game so I, I was happy too.

[End of Track 4]

[Track 5]

*Could you describe World Medicine to begin with as, as a place, so where it was, where you went to every day while you were working there, and who was around you. So the, the colleagues at every, at every kind of level there.*

Right. OK. Well, it was based in a little street called Dyott Street, d-y-o-t-t, Dyott Street. It's just off New Oxford Street, near Bloomsbury. It's a church, Congregationalist church. It doesn't matter. Just off New Oxford Street. Oh, my colleagues. Well, I can actually give you a, I can do a copy of the masthead of the first... I've got a set upstairs. Do you want to see that now?

Yes.

[pause in recording]

*So if you could then, tell me about some of the people on the masthead that we've got here, in terms of how you related with them, who you reported to, who you worked with, that sort of thing.*

Mhm.

*You started in 1965.*

Yes, that's right. Well, I mean I reported to Donald, Donald was the editor. I was one of, well five or six staff who were writing, and, I reported directly to Donald, about my ideas, and, he would comment on things I had written, so on. I found him very very helpful. He was a bit, he was sometimes a little bit shy of being critical.

[laughs] He would, he was, you know, he didn't always tell people, not me of course, but didn't always tell people when they had done a really bad job. But, anyway, so my relationship with Donald. John John Izbicki you see there was deputy editor.

John I'm afraid was, you know, again, you're not to say this, but. the deputy editor of the time was in, in the wrong place, you know, he shouldn't have been there. And that was the first of my bits of fortune in life, that he, he left shall we say, and, I, I had



obviously done well enough as an assistant editor to be promoted in Donald's eyes to being deputy. So that was my first, everybody needs a bit of luck in life, and that was my first bit of luck. And then, Christine Doyle was one of my colleagues, I used to work quite closely with Christine. At some stage went off to become medical correspondent of the *Observer*. [talking to Kath] Christine Doyle's married name, Bob...?

KATH: Oh.

Married Bob...

KATH: His son is a writer as well.

Mm?

Mm? I just can't remember. [pause] Their son writes, their son rights...

KATH: Their son is a writer.

Yes, that's right. If it comes back to you...

Kath: I'll... Yes.

Christine Doyle was, was very able, and... And then, who was the other person on the...? Oh, Compton, Mac as we called him, Compton Ifill. He was really the person who was, he was production. He really, you know, was responsible for schedules and, what's called the imposition, you know, the imposition, the, [laughs] the imposition of what a magazine used to call, or some people call it the flatplan, that would be a, a sheet about this big with all the pages marked, and all the, you know, sizes of the ads and the editorial that was going on each page. It was quite a complicated job actually, pulling all that together, and keeping abreast of changes when the ad department suddenly wanted something pushed in rather late in the day. So Mac was... And dealing with the printers. Sorry. Dealing with the printers, that was all Mac's business. And, Margaret Webb and Charles Coppard were the art department. They

had actually been brought in as a, as a pair of, together, from a magazine called *Abbotempo*. Abbott Laboratories used to have this medical magazine which was published in a number of different languages, and they were, they had been working on, I forget which, one of those editions, and Abbotts decided to, to pull out and just have one edition, English language only, in future. So, Margaret Webb and Charles Coppard came from there. That was a bit of luck, they just walked in and they'd worked together for many years, and walked straight into, into this new magazine.

[0:04:45]

The, [laughs] the thing I, the thing I remember most clearly of all about the early days really was to do with the fact that, we were all in place some several months before the magazine was launched, so we had ages of time to write and plan and design and do all the things that needed to be done. And suddenly one day, the first issue was published and we'd got to do another one in two weeks. [laughs] I remember that. You know, for people like me who were completely new to it, but even for people who had been in the business before, we found that quite a shock. We'd been working at a, a very leisurely pace, and, going to the local pub for long lunches and... [laughs]

[0:05:28]

*Can you remember what you worked on at this leisurely pace for the first edition?  
Given this is your, your first experience.*

The main... It started from the first issue, but in fact it wasn't published until two or three issues later. The main thing that I spent time working on, and I love doing this, is to do a, later became known as an investigative, investigative feature. It was early days of kidney dialysis, kidney machines for people with chronic renal failure, and, there were differing views around the community as to how quickly kidney machine facilities ought to be set up. Obviously, a kidney machine was a lifesaver for somebody with renal failure, and this was really before transplants got going. So, a kidney machine was the obvious solution. And it was very effective, your blood was circulated through this artificial kidney and, we now call it detox. [laughs] But, urea and other waste products would be removed from it, and so the blood's circulating and then comes back, back into your, into your body. It was very effective. But there was, you know, there were dangers associated with it, you know, as with any new

technology, and people were, particularly one or two critics were particularly concerned with, simply the amount of blood that was going to be splashing around while you're doing this, and, the possibility of picking up hepatitis viruses and the patient getting hepatitis, which did happen. So my job was actually to go round the country talking to people, ranging from a man called Stanley Shaldon at the Royal Free Hospital in London, who was very very very enthusiastic to go ahead very very quickly with this, and people at the other end of the scale, a man called Douglas Black, who later became Sir Douglas Black and became Chief Scientist at the Department of Health many years later. He was then professor of medicine in Manchester, and he was urging caution, he was saying, 'New technology, untested. We know it works but, we have to be careful.' And he was vilified as being a dog in the manger, you know. So I went round the country talking to people like that, Tom Parsons in Leeds, ooh, somebody in Newcastle whose name I've forgotten. And all the kidney units that were being set up or were being discussed. And I went around and talked to these people and gathered their comments and views and, tried to set it all out in one, quite a long feature, just, you know, to help GPs to understand what was going on and what rate it was developing. And so on and so on.

*How had that been chosen as something for you to work on as an early assignment?  
And this might lead on to, how anything was chosen to be your...*

I think it was, Donald was aware that bits and pieces had been written about this, the controversy about Stanley Shaldon in London who seemed to want to take charge of the entire country's kidney machine development, concern, the ethical worries, the safety worries and so on. There had been little bits written here and there about that, bits in local newspapers, and Donald wanted it all brought together, to give GPs the total picture.

*So, it was Donald deciding in that case what should...*

Yes, oh yes.

OK.

Oh yes, yes. Yes.

[0:09:26]

*And, perhaps you could then tell us some other things that you worked on, before the promotion. So, as an assistant editor.*

What else I worked on? Oh gosh. [pause] I, I did a lot, because of my own interest I did quite a lot on infectious diseases, and, including an article on the respiratory viruses I mentioned to you earlier. I remember, something completely out of the normal range would be, doing a feature on, there was a doctors' strike in Canada. And I happened to have a colleague from Newcastle who was working in one of the hospitals in, Vancouver? Or, certainly in Canada. And I got on to him, and he helped me to pull this feature together. It was, it was actually quite interesting, looking at the, looking at the, the planning for this strike. It was a strike about, about salaries, about money, between the doctors and the Canadian government. And, you know, planning for the strike, a total strike, quite, quite tricky for the medical profession. So they had to sort of think about priorities and what sort of patients they would continue to treat, emergencies obviously. And all that stuff, the ethics of it and the social aspect. Well I spent a lot of time on that. The upshot, the rather strange upshot was that, this strike did take place over, less than a week, it was several days, and the death rate went down. [laughs] The death rate in Canada went down. You know why?

*Why?*

Well, well because, not... The main reason is, not so many people were having operations, and, any, or, any, any surgical operation carries some risk with it, as well as benefits obviously but... It was simply the fact that there were not so many people being exposed to that, that danger. Operations were postponed. And there was a significant, not a, not a trivial but a significant decline in the death rate. [laughs]

*That doesn't work out very well for the strike, does it?*

[laughs] No, that's right.

[0:11:48]

*To give us a sense of the sort of, kind of work and pace of work, is it possible to describe a typical week working on World Medicine? For those people who have absolutely no idea what being a science journalist, in this case an assistant editor, might involve as a job, as a kind of day-to-day job, a certain number of things that you do in a set period of time.*

Yes.

*So, if you could sort of, go at the level of walking into the building, what do you do, who do you speak to, what do you use, how do you write, where do you write, all of that sort of stuff.*

Yes. Well, I mean, if I describe it, it'll sound rather mundane, but...

*That's OK, that doesn't matter.*

But you know, we would, like other magazines, and indeed daily newspapers, in the case of a newspaper it's called the daily conference; in a magazine it's, every week or two weeks, or, whatever. And you, you simply sit down with your, with your colleagues. Everybody's been asked to come with their ideas about topics that we might investigate, or we might do, and how we might go about it. And we would sit down and, and discuss the various options. Commissioning, or making the initial decision based on getting more stuff than you're ever going to require, because some leads will obviously prove to be, not very interesting. And most of those topics that would be discussed would then involve people going off, perhaps to a scientific conference, perhaps to a meeting, or simply ringing people up and talking to them and going to talk to them about what they're, what they're doing. Which in those days, it wouldn't happen now, but in those days one did find people sometimes who just didn't want to see journalists. [laughs] You know, they just didn't want to talk at that sort of level. I remember doing that once with somebody, and I thought, well I'm going to go anyway. And I went, and got hold of this guy [laughs], and, once I got talking to him and he got, he got a bit of confidence in me, that I wasn't a complete idiot, he, he was happy to, happy to go on talking. It was about a new endotracheal

tube for breathing, people who have got a problem like, with diphtheria for example, and they'd got the tube in here. Nothing very earth-shattering about it, but he didn't want to talk, and so I, I showed that I had done a bit of reading and I knew a little bit about it, and... So... But of course nowadays you'd probably, very rarely if ever, get somebody unwilling to speak to the press, I would think.

*Can you, what is the reason for that difference, then and now?*

Oh I think, people just, just feel obligated to talk about what they're doing to the media, to the wider public, as well as an ulterior motive of, as I mentioned earlier, you know, if you keep the public aware of what you are doing and how much it's costing and so on, it helps to keep the money, the money flowing.

*And did you gather in this case why the individual had been initially reluctant to...?*

Oh, it was just a clash of cultures really, he just didn't, didn't know, want to know anything about, about the media, and he was one of these people, I'm sure, who probably thought that journalists get everything wrong, which is an attitude I continue to meet. [laughs] It's not true of course, but, an attitude that's still, it's still there, but not, not as prevalent as it used to be.

*OK, so you've had the, you've had the weekly conference.*

Mm.

*You've fielded some ideas. You've either gone to a conference or a meeting or, or gone to talk to someone.*

Mm.

*And then, then what do you do?*

Well you come back the next time and, say, 'OK, how did it go? Where have we got to?' It may be that there was no story. It could well be that, something you thought

was, it might be something you, you believed to be relatively new and you discover that in fact it's not actually new, it's been, this particular technique has been, been used for quite some years. Or that it turns out, especially if you talk to other people in the same area, it may turn out that you've got somebody who is, who is exaggerating the importance of what they're doing, when there are other existing techniques or methods or drugs which are, you know, not really inferior to, to the one that you're, that you're working on. So, I mean, that sort of thing happens. And that, that's why it's always useful to talk to other people in the, in that area, you know, to get a, get a feel for where this particular, where this stands in relation to other, other approaches to that condition.

*And it may sound an unusual question, but how did you write at this time? So, if you come back with a story that is a story.*

Right.

*It wasn't a false lead, it is a novel thing.*

Mm. Yes.

*You think the readership will be interested. How do you write, meaning, did you have to write in a particular place? Did you have particular routines? How long did you have to do it? How did you go about structuring your things with the readership in mind? All of that things.*

Well in this case I would come back and sit down at my typewriter, and, and write it that way. If you were at, at a meeting, and I mention later that Kath and I used to run press facilities for, for meetings and congresses, then you have a press room, and you have, well, in those days a typewriter, typewriters will be provided, and a telephone, and you, you would actually write the stuff there and then. If you were working on a national newspaper you would be, you would be filing it, as it was called, the same day, you know, you'd, you would actually ring, you would dictate it over, on the telephone, to the *Daily Telegraph* or whoever. And it was a very laborious business, they all had these people called copytakers, and, so, you would have to ring the

copytaker and say, 'I've got a story here, it's 500 words long and it's about this,' and, and dictate it. That's really, that's all gone of course, but, people do it instantly. They do it in real time. But, no, in those days, conferences, you would, you would probably do your stuff there and then, at the actual meeting. But for the most part, for *World Medicine*, I'd go back to the office and write it up and do a, do a first draft. No word processing of course, so you'd have to a first draft and, edit it, or pass it to your comments for their comments – your colleagues for their comments. Then a second draft. Lots of carbon paper. [laughs] Very laborious.

*And, you said that you tended not, the editor tended not to be critical of colleagues' works. But, when you were asked to make changes, what tended to be the...?*

Oh no, I don't want to exaggerate that. I mean, he was, he was very able, and, you know, I mean he would, he would come out with comments and criticisms and suggestions and, things, aspects that you may, you may not have looked into as deeply as you might, and so on. But, no, he was, it was simply the fact that he, there were certain rather stropy people he didn't want to have a row with, he didn't want to, he didn't want to criticise them too strongly, although he should have done. So, I don't want to say that was the norm.

[0:19:40]

*Mm. OK. And, how did you, how did you write in a way that you thought, presumably would get GPs reading? They weren't reading the BMJ; the idea was for them to read the new magazine.*

Mm.

*So what was the kind of, the strategy for the prose, or for the argument, or the...?*

Well, it, it's really, the difference between, you know, a journal and, and something where you, you have to build a bridge. This applies to a lot of popular writing. You have to build a bridge to the reader. You've got to start, immediately, with something that will, will entice them to read on, basically. You know, the typical journal paper that starts by saying, 'There has been a considerable amount of interest in recent years



in the application of, 'blah blah blah blah blah, a generalisation like that, which is perfectly OK in a journal – I would say it's not, because usually you're saying something everybody knows anyway, but, nonetheless, that is, you know, that is how it's often done. With a magazine article, you, almost anything, almost anything else. Pick out... You see this on television. Instead of saying, 'OK, we're going to talk about the,' a particular medical condition, or we're going to talk about Coxsackieviruses, and, Coxsackieviruses are viruses which, blah blah blah blah. Instead of doing that, go straight into a patient, you know. What happens on television, yes? This is... Jean Smith has developed a Coxsackievirus infection. She's been treated but she's not doing too well. Blah blah. Personalise it, make it, make it, make it a story, make it into a story. And then, and then you come into, you know, the, the broader picture.

[0:21:30]

*In the absence of sort of, formal training in journalism before you had this post, where did you, where were you looking for models of good writing of this kind? Did you have particular journalists that you admired, or particular writers that you attempted to emulate, or particular principles that you had got from someone about how to do this?*

Mm. Mm.

*The, the sort of things you're telling me about the way to make writing appealing, where had you gathered those from in order to be able to do it straight away, as soon as you left research?*

Well I think, that probably goes back to the, Mr Osborne at school, the person I told you who, who instilled the idea of, of always starting... He used to use the word fresh, start in a fresh way. You know, don't use banalities and generalisations and platitudes. And I took a lot from that really, and I, I used to reflect on that when I was reading stuff in the newspapers or magazines. Those things that engage the reader, and a sense of, a sense of pace and direction in a story, is important as well, you know, like how do you introduce the next bit. It it's, it's easier to describe a boring piece of writing when this is not done than to describe what does need to be done, but

it's, it's just maintaining freshness really. And engaging, engaging the reader at the very beginning, absolutely crucial. Unless you've done that within a sentence or two, people will have passed on, they won't ever come to your article.

[0:23:19]

*In what way did your role change then when you were promoted? This was... You started in '65. In what year did you move up to being deputy?*

Oh gosh. It was, I think it was about, two years later, I think, I'd have to, I'd have to check that out. Or it might have been less than two years, because I'm afraid John Izbicki, it was not a success. He... Well, I won't say any more. What, how did my role change? I suppose it, it took me much closer to Donald, and sort of, making judgements. I mean Donald would trust my judgement about a, a story that was offered to us, you know, one of our, what we'd have seen is a huge list there of correspondence, and if we were offered something. And you might have to make a decision fairly quickly, yes or no, or talk about it, and, how it might be done. I think Donald gradually decided that, I'd got those things right, so I was allowed to get on with those things, and not having to run to him every day, 'Somebody suggested this; shall we do it, what do you think?' Although I still did that, I still talked to him, but, I, I was just left on my own more to, to run it. And the other thing actually that related to this is that, it was some years later, there's another person who's not on the masthead at the beginning, that joined the magazine some years later, and his name was John Wilson, John Rowan Wilson, who had another career as a medical novelist. John had worked on the *BMJ* at one time, but he was now doing his medical novels, and it was convenient for that reason to, for him to have a part-time appointment with *World Medicine*. And his title was International Editor. So he tended to be the person who would deal with correspondence around the world and so on. But, the reason for mentioning his name now is simply that, you asked how my role changed. Well, John at some stage took me out for lunch, and talking about various things and changes that were going on, and he said, he said, 'Of course you're such a good manager.' And the reason for mentioning it is that I had never, I never imagined myself to be a manager. I had imagined myself to be a writer, you know? I was a writer. But John came out with this comment, 'You're such a good manager.' And I, and I thought about that years later when I, when I went to *New Scientist*, and nobody ever taught me to, to be

editor of *New Scientist*. [laughs] I mean there are occasions when newly-appointed editors get sent on a course or whatever, or they're given training. Richard Smith, when he became editor of the *British Medical Journal* for example, the then editor, Stephen Lock, decided that Richard was a very good medical journalist, but, he didn't have much business sense. So they sent him off to Harvard Business School for six months to do a course in management and finance. Well I never had that or anything like that. I, I just picked up this stuff by osmosis, you know. [laughs]

*What did he, when he said that you were a good manager, what did he, what did he mean, what, of people, of, budgets, of space in the, in the place?*

Well, yes, all, all of those things actually. Yes, taking a, a wider view than just the editorial content. I think it was all of that. It's really the job that, I mean in some magazines there used to be somebody with a title, managing editor, and I suppose that's what I'm talking about. So not just looking at the words, I'm looking at the, the trends in the, in the advertising, in the revenues; the, keeping track of the business plan, you know, you have a business plan which projects circulation, how it's going up or down, up hopefully; advertising; relations with the printer, schedules, and all those things. And I, I did actually gradually find myself getting more interested in that stuff, which initially I totally ignored, it wasn't my business. But, I think, does that answer the question?

*Yes.*

I mean, it's, it's what, it's what, as I said, some publications have had a job with the name of managing editor, and it's probably that that I'm talking about really.

[0:27:58]

*As you became interested in, for example, the advertising, how did you feel about the advertising, the kind of advertising that was used in the magazine, in other words, pharmaceutical companies?*

Yes, I, I was, I was not unhappy with, with anything there. There could have been. There could have been. But it didn't happen to me at that time. I mean some years

later, where I had a dust-up with IPC over... I'm sorry, I'm leaping forward. You don't want...

*That's fine.*

*New Scientist*. But, when I was editor of *New Scientist*, we, we had an ad submitted which should have been shown to me, because, I don't know whether you know this but an editor, not the advertisement manager but the editor of any periodical, is responsible for the whole content. And broadly speaking I was shown anything that was, you know, ad that was offered. On this occasion I wasn't, which was part of the problem, and it was an ad from the Legalise Cannabis Campaign [laughs], who submitted this ad, and our advertisement department rejected it, they just didn't like the smell of it. So of course the Legalise Cannabis Campaign got on to me, told me what had happened. I was very angry, it shouldn't have happened. So... So what did I do? Next issue, I wrote an editorial about it, and I said, 'Readers of *New Scientist* really deserve to know that the Legalise Cannabis Campaign,' which wasn't, it wasn't a scurrilous campaign, it wasn't selling cannabis; it was simply a lobby group arguing for a change in the law, that's all it was. And I pointed out that, and I said that readers ought to know that this advertisement was submitted to *New Scientist*. 'It was not shown to me as it should have been, and so I'm going to now tell you...' So I told the whole story in an editorial. [laughs] The funny thing there was that, when the magazine, when we got the advance copies of the magazine the day before publication day, my publisher, who was my boss, the publisher of *New Scientist*, he came storming into my office. 'You can't do that!' he said. 'You can't do that!' And I said, 'Well I've done it, I mean...' [laughs] He was absolutely furious. And... But it was quite interesting, because he, he said, 'Oh,' he said, 'I'm going to be in awful trouble,' he said, 'it's all very well you doing this, but, I'm going to be the one who's in trouble here.' He was, he was intensely ambitious, this man, and wanted to become, you know, sort of managing director of IPC, which was the parent company, or something up there, he wanted to be, you know, one of the top dogs. So, anyway, later in the morning he rang me up, he said, 'This terrible stink, it's awful. You've really done something really, really, really outrageous here, publishing that editorial.' [laughs] And he said, 'Look,' he said, 'I need you to come with me, to go to talk to the editorial director of the general magazine group. He's furious about this. Will

you come with me?' He said, 'In fact, you've got to come with me.' So I said, 'Yeah, of course, yes.' So we, [laughs] we walked up the road to the headquarters, the boardroom. Went up to... And his name, this man's name was Brian Cassidy. And, and my publisher and I stood outside this door, and then, the door opened and Brian Cassidy appeared. And he said, 'Oh come in, come in.' And we sat down. And he said, 'OK Mike, what's this all about?' [laughs] He didn't care less. He couldn't care less. Perfectly happy. He didn't see it was, you know, he wasn't... [laughs] He wasn't really interested actually. But, it tells you a bit about relationships within a publishing company. And... So, yes, as, as an editor, you have to be interested.

[0:32:28]

And, another example would be when, again this I might come to later with *New Scientist*, I played a significant role in getting restrictions on the use of antibiotics agreed by the Government, by committee, by the Swann Committee, which I can give you a piece about if you're interested. And, there was a company, aptly named Crookes Laboratories [laughs], and they were marketing a product which included an antibiotic called chloramphenicol which is a very very powerful antibiotic, and it's one that is absolutely vital, if you've got typhoid fever, and other antibiotics have failed to work, then chloramphenicol is, is the last shot in the locker; it's one you ought to reserve. They, they were marketing a product, put this into the water, the feed, the drinking water for broiler fowls, for chickens. Yes? Very, I mean really, that's really irresponsible. Now, it didn't happen at the time I was at *World Medicine*, but if that company had actually been advertising with us, I would have, I would have wanted to intercede and, and stop them, because, they were behaving so badly in relation to chloramphenicol. So there are things like that which an editor needs to be, needs to be involved in.

[0:33:53]

*Were you aware of any pressure from the publishers of World Medicine for the editors and deputy editor and so on down to be writing certain things or not writing certain things, based on their...?*

No, I, I don't, no I don't think so. [pause] I don't think so. But I think I have to, I have to have a bit of a proviso there, because this was at a time when, when the

amount of pharmaceutical advertising was, was rather lush. I mean a lot of potential, a lot of... And there were other, *World Medicine* is one, but there were other new magazines starting up, like *GP* and *Pulse*, and others, and so, there was not only a lot of advertising, which was necessary to support these publications. Because I haven't made the point, these were all controlled circulation, they didn't sell on cover price, right? They were all controlled circulation periodicals, that's to say, you launch a magazine, and it's, it'll be distributed to, 40,000 engineers or whatever, a defined audience. And all of these magazines were of that sort. And the fact that there was a lot of advertising available at that time meant that, you know, things, it was good times, you know, almost anybody could come along and launch a controlled circulation magazine. But when it began to dry up some years later then the pressures, the pressures increased, obviously, and, and editors, I don't say they were, but might have been tempted to, to write stuff that was favourable to, to advertisers. I'm not saying that ever happened, I can't think of any examples where that did happen. I mean, it, that... [laughs] A story that illustrates that is, is that it, it appeared to have happened, but it hadn't happened, it appeared to have happened by accident, because, I mentioned the flatplan, the imposition, which is a, the pages of, the spread of, right-hand/left-hand page, little shapes where the ads are. In *New Scientist*, I decided I never wanted to know, on the book pages in particular, I didn't want to know, this ad here on the top left-hand page is Oxford University Press, and that one's Methuen, I didn't want to know. And the reason was very simple, and it did happen once, by accident. I didn't want an ad for a book to appear alongside a very favourable review of that book. And that did once happen, but it was accidental, because I didn't know, here was a book published by Faber and there's a reviewer praising it to the sky saying, 'Wonderful book, you must buy it,' and there's an ad next to it. And I thought that was, you know, something to avoid. But it happened, [laughs] it happened willy-nilly, it happened because I wasn't, I wasn't looking.

[0:36:55]

*Did you get any sense of whether GPs were reading the magazine?*

Oh yes, yes. Yes, absolutely. Because, although I've said that it was a controlled circulation magazine, the, the drug companies, they want to know that it is being read, and so they did their own surveys, they would survey GPs and ask, 'Are you reading

this?' And, what, related to that, I mean when, when ad revenue was declining, you know, when the amount of advertising was declining, there was a thing introduced called 'paid for' – sorry, 'requested', requested circulation. So that's not, you're selling on a newsstand, it's not free, given away, with no checks at all, just handed out; it's in-between. People would send you, a GP, a copy of this magazine for six months and then say, 'Please fill in this card, and tell us whether you really want to continue receiving it or not.' And that seemed quite a good compromise, quite a good compromise really, because people are not going to do that unless they really want it. And that became the norm, solved that problem.

*When did the ad revenue start to decline, while you were still working for World Medicine?*

Oh no, no, I'm talking about, no, some years, some years later. I'm simply observing what was going on. No no. No, we were, we were quite lucky really. And of course *World Medicine* had the success of *Medical World News* in the States to, you know, to talk about and to, you know, reassure advertisers that they were on to a, on to a good thing.

[0:38:33

*Now we might talk about the content of it next time, but could... Before I go today, could you tell me how it is that you came to edit a collection called *Journeys in Belief*, which I think was published in 1968.*

Mm.

*And was therefore before you moved from World Medicine to New Scientist.*

Mm.

*So perhaps we could get us into why that happened.*

Mm... It... Not a lot to say about it really. I just, I had been interested in people's beliefs and where they came from, and particularly interested in, when people

changed their religious views in one direction or another. I was aware that there were an awful lot of rather boring books with, with ten or twelve chapters each written by, you know, by an agnostic or a, a Hindu or a, whatever it might be, or an Anglican, Christian, you know, that sort of collection. So I thought, what I'll suggest to the publisher, Allen and Unwin, I'll suggest a book which will be people who have changed in opposite directions, including, you know, different directions, but opposite directions, and why, what caused the... I've got a bit of a feeling that people, some people who are intellectually curious did quite like the notion of having an upheaval occasionally in their lives, in their ideas, and... So that's why I, to my amazement, I mean I suggested that to somebody at Allen and Unwin and, and they said, 'Yes, yes.' I mean years later I realised that, Allen and Unwin at that time actually was, was doing so well with its, its backlist of books that had made huge amounts of money, [laughs] that they could afford to take on almost anything really. The, the pressures on publishers to, were nothing like they became later, so they could afford to be a little bit, 'Oh yes, all right, we'll do that.' [laughs]

*And how did you go about putting it together then, deciding who would be the...?*

Well some of the chapters in there are by people I'd, people I had been aware of because of other things they had written. Some... I, I went looking, I talked around, and... It was, it wasn't very systematic, it was rather a sort of, ad hoc business really, of pulling these people together. Yes.

*Was this interest in people's beliefs, was it to any extent related to your sort of, day job, I mean, working on the magazine?*

No, not at all, no.

*Was there an opportunity there to gather data on this, or to think about...?*

No, wasn't... Completely unrelated, it was just a bit of fun really. [laughs]

[End of Track 5]



[Track 6]

*Could you tell me then why you left World Medicine and went to the New Scientist, essentially is the question isn't it?*

Yes. This is where life gets a bit complicated. And I, I said earlier that everybody needs a certain amount of luck in life. What happened was that, rather out of the blue Donald Gould, editor of *World Medicine*, had a phone call one day from somebody called Nigel Calder, who was then the editor of *New Scientist*. Nigel, for reasons I could go into, it's, it's no secret, I, I don't know whether want that stuff.

*Yes please.*

But... You do?

*Yes.*

Yes. OK, well, Nigel Calder was the son of a, of a, somebody sometime described it as 'the doyen' of British science writers. His name was Richie-Calder, became Lord Riche-Calder. And he had been involved in the discussions. He wasn't on the staff of *New Scientist*, but he was involved in discussions about it, way back. *New Scientist* was launched in 1956, and Richie had been involved in discussions about it. And the first editor was a man called Percy Cudlipp, who was a national newspaper editor, used to edit the *News Chronicle*, and he had as a sort of partner really a man called Tom Margerison, Dr Tom Margerison, whose title was Science Editor. In due course Nigel became editor. And the magazine had had a rocky time initially, but had begun to work quite well, the circulation was building. And, there had also been a shift in ownership, this is... I mentioned earlier IPC, International Publishing Corporation, that owned *New Scientist*. Well, IPC actually came from a merger between three old magazine empires, Newnes, George Newnes, Fleetway and Odhams, these were three long-established old magazine publishers. They merged to become IPC Magazines. Nigel had been battering away with his, his publisher, to, 'Come on, please, you know, we need... The magazine is doing well in the UK; it's time to go into the States,' you know, launch a US edition. And, he got no for an answer every time. So

he got fed up, decided to, decided to leave. And almost a week later he discovered that, [laughs] the company had now become International Publishing Corporation, at which point he thought he'd made a terrible mistake, because IPC would now go international with, with *New Scientist*. It never happened. Or, no, it did happen later, sorry, it didn't happen then. So, Nigel had decided to leave, and was going to go off and do other things, and particularly television, science programmes on television. So there was a vacancy for his job at *New Scientist*. And he rang up Donald, who he knew through the *New Statesman*, they both worked for. So he rang up Donald and said, 'Would you be interested in being editor of *New Scientist*?' And Donald said, 'Yes, [laughs] I, I think, I think I would.' So Donald found himself, you know... And then he met the publisher and they talked, and got on well, and, Donald became editor of *New Scientist*. And, in the course of time, which was probably about a year or so, not much more than that, he asked me if I would come and be his deputy. So this is, I've already talked about the amount of luck in life, this is a bit of luck as well. So I'm suddenly editor of *New Scientist*.

[0:04:11]

And, there are bits I have to edit out here. [laughs] So I became Donald's deputy at *New Scientist*. I found fairly quickly that there was, there was a problem. Donald was a very very good writer, great writer, one of the three best writers ever wrote for *New Scientist*, was Donald. But, Donald really wasn't, he wasn't a really, really sharp editor, he wasn't... And he wasn't interested in the things that I mentioned to you earlier about advertising and all that, and, he wanted to, he wanted to be a writer, a journalist. He was probably in the wrong place. And things were going, things were not good and the circulation was declining. So *New Scientist*, which had been launched in 1956, rocky time, then circulation began to build, and then at the time I'm talking about it had reached... It had, once or twice, almost reached 50,000 but never quite did, and indeed now was declining, circulation was going down. This is in about 1967/8 or something like that. Circulation's going down. As I said earlier, advertisement departments don't like, [laughs] don't like declining circulation. So representations were made by the advertisement manager to the publisher, who more or less, he said, 'Yes yes, we need to do something,' but didn't know what to do, apart from changing editor, or getting Donald to change. To cut a long story short, Donald just didn't do anything, he just sort of sat there, editing the magazine perfectly competently, but he didn't seem bothered about what was going on. So, they sacked

him. Meanwhile I had become deputy. They made me acting, acting editor for a period of months, and then they said, 'Mm, yeah, it's going rather well. Would you like to be...?' [laughs] So I became editor. So that's, that's quite a lot of luck, quite a lot of luck.

[0:06:35]

But of course, it meant a huge opportunity for me. I've often said that anybody who is taking over a magazine or journal or whatever that's already riding high and doing very very well, has a problem, because they, you know, what can they do, what should they do? I, I inherited a magazine with a big problem, declining circulation, and declining ad revenue. Because, because circulation was going down, advertising was going down. So I had to have a really, you know, hard think about, particularly looking at the question of, may seem weird, but, who is *New Scientist* for? I discovered fairly quickly there were several different views about what this magazine, what it was, you know. Is it a popular magazine? Is it a house, a house magazine of the scientific community? Is it really, is its centre of gravity really in science-based industry? What is it? And there were different views between the ad department and, and Donald the editor, and the publisher, they all had – and the editorial director we had as well, they all had different views about what it was. And I spent a lot of time thinking about it. I decided it was, it was all of these things really, and what we ought to do is recognise the fact that you do have different sectors of the readership who are wanting different things out of it, and try to do each of them better than before, and not try to sort of, hybridise it, not try and sort of, shade it in any... So that's what we did really. I drew up a plan, a business plan – well, editorial plan initially, but it had implications because of the, what I was saying in terms of what money was required to do various things. And to cut a long story short, it worked, you know, we began... I think the magazine, the only editorial point I would make, actually it is quite important, and this is a criticism of Donald, the one editorial point I would make is that when we had that weekly meeting to say, OK, what's, you know, what are we going to do next week, we were literally doing that, which you have to do with a daily newspaper, we, we usually had very very little stuff already commissioned or set or, whatever. The previous editor, Nigel, it had galley proofs hanging everywhere of articles that had been commissioned weeks or months ago, and were set and ready to go in. Donald, because he wanted *New Scientist* to be much more immediate, got rid of pretty well all that stuff [laughs], and we worked from hand to mouth. We, we'd

sit there and, 'OK, what's happening there, what's, what's happening in technology this week?' 'Oh,' the technology editor would say, 'oh I'll tell you what we might do.' And it, it worked in that way. Which gave the magazine a freshness that it didn't have before, because everything was, was, became very topical. Everything that we did was, related to, well ninety per cent, related to things that are in the news this week. But it lost some authority, it lost a lot of authority really, partly because sometimes you say, oh we need an article on, you know, on winter respiratory infections in, you know, hospitals and old people's... We want an article on old people's homes, and the problem of colds and flu in old people's homes. We want... So, OK, let's do that. But we may not get the right person to write it, because that person's not available, can't do it in two days. So you go to somebody less, less able. So that sort of thing happened quite a bit, and we were publishing some very, rather second, rather send-rate articles really. And so that's what I tried to do, I tried to recognise you do need a long-term plan, longer, much longer-term planning, but also, you do the immediate things as well. And that, that's the formula that I think was successful, and circulation began to grow. Which meant the ad department were very happy of course.

[0:10:46]

*What other aspects of your plan were there? Aside from, for example, bringing in more long-term commissioned articles alongside...*

Well, there were, one or two things were a bit painful, because we had some people writing regularly who were just not doing a very good job, and had to be, had to be got rid of, or redeployed. I mean a good example of redeployment would be that, we had a man called, have you heard of a man called John Hillaby? Well John Hillaby, I've got a book of his somewhere in here, John was a Yorkshireman, rather a bluff Yorkshireman. He was a, his speciality was natural history, he used to write, about the birds and the bees if you like. But he got more and more interested in walking. He did a number of long walks, you know, *Journey Through Europe* one was called, he did the Appalachian Trail, journey through, he walked from Land's End to John o' Groats and wrote about it. He would write about the, what he saw, you know, the vegetation, the, the terrain, the geology and what he was observing, and he'd be, you know, know about this stuff, and he would... So he was a mixture of travelogue and,

and scientific understanding as well. All of which was super, excellent, excellent. But, when I joined, when I became editor, I found John was writing a regular piece in a section called 'Notes on the News', which was what it describes, and many of these were actually on something published that week in a scientific journal. And John was, amongst other people who were doing it very well, John was writing these things, and, he wasn't doing it very well, I'm afraid. He really wasn't doing it well. And I thought, you know, we can't go on. So I thought about it, I thought, what we should do is, tell John, 'I'm sorry, we don't want any more of that, but would you write us a regular column?' You know the sort of thing he did in the, in the books about walking. So I put that to him, and he was delighted, he was over the moon. So that's a good example of taking somebody who was doing a job, a square peg in a round hole, he wasn't writing the right sort of stuff, he didn't have the knowledge to do it properly, but there was another type of, another type of article he could write and did write for us which was excellent. So there were quite a few of those you know, examples of that type of thing, of, making better uses of, of the, the people you've got.

[0:13:21]

*Could you describe the workplace for New Scientist?*

The workplace? [laughs]

*Yup. So if you were going to imagine yourself going through the, the front door of New Scientist at this, at this time.*

Yes.

*And, can you just sort of describe the place?*

Not a lot to say. I used to think about this quite often, about once a year or so I'd get a phone call from the British Council who would say, 'We've got a group of,' of, I don't know, South American visitors coming, journalists, or Chinese or, whatever, and can we, 'can we bring them to see *New Scientist*?' And I used to, I used to think, or sometimes said, 'Well, yeah, but I mean all there is here is a lot of desks and typewriters. [laughs] There's not a lot to see.' And that is the case. I mean they used

to come, and I'd talk to them, and they were quite happy. But, but you know, it was, oh, what was it? It was a rather ramshackle building in Longacre, No. 128 Longacre, with open-plan mostly, offices, and different departments, you know, technology department, art departments, and so on, and production in the middle, a guy, Mac, who I mentioned at *World Medicine*, he would sit in the middle, because he became production editor of the *New Scientist*. Another one, [laughs] another, people who moved from *World Medicine* to the *New Scientist*. And he would sit in the middle, doing production. And twice a day a printer's messenger would come with a, with a bag and, bringing proofs of articles. I mean all this sounds ancient now with, because there were no computers around. And, and then he would take away the stuff that had been put together during the morning, you know, articles that had been written and, and the artwork had been done by the art department, and that's all put together and the messenger takes that way, down to Southwark where the printers were. And that's about it really, not a lot to say. The coffee lady used to come twice a day. [laughs]

*Where did you sit, as editor, in relation to the mostly open-plan, desk and typewriter?*

I was in one corner. I, I inherited, and I was quite happy about a bit of, a bit, a bit of privacy. So I didn't sit in the middle, if that's what you are asking. Not a lot to say.

*You had an office in the corner, or...?*

I inherited a, an armchair, a green armchair with a, a greasy patch about here, that apparently came from the first editor, Percy Cudlipp. [laughs]

*So you, it was an armchair in the corner of the room, rather than an armchair in an office in the corner?*

This was, it was facing my desk actually, the armchair. Yes? Is it, is that important?  
[laughs]

*No, I... Sorry, I just want to imagine it. So... But you're still, it's within the room itself?*

Yes. Oh yes, yes, sure. Yes. Yes. And the advertisement department would be downstairs, they were separate, and the publisher and, and other people, were along the corridor. But editorial was... And it was, it was, the other thing to say is, it was right next door to the other two magazines in the immediate group, called Special Interest Group, were a geographical magazine that was published for the Royal Geographical Society, and then further down that same corridor was *New Society*. *New Society* had been launched on the back of *New Scientist* some years before.

*What did you see of the operation of those publications while being adjacent to them?*

Oh, we, I mean, I wouldn't say we saw a lot of the operations, but we, you know, I knew the editors quite well, and we used to talk, and sometimes things that we might collaborate on or pass ideas to and fro. [pause] We also had, we had two, two failures, one was, one was, a decision was taken at one time to launch a, what was called a junior *New Scientist*, and, it, it wasn't a very good idea because, I mean, it was based on the fact that *New Scientist* had a schools scheme, you know, copies ordered by schools, and a master or mistress at the school would order the copies and, and send the cheque off, and that person would get a cut for doing the logistics, and the bundle would arrive, and, handed out to people interested, at a special rate. And, that had been going quite successfully for a while, so, based on that, the publisher thought, why don't we actually do a, a science magazine specifically for schools? And that was launched, it was called *Science in Action*. But it, it didn't do very well. It probably did hit *New Scientist* school sales to some extent, not sure, but I think it probably did. And it was closed after, oh, I don't know, ten or twelve issues. And the same thing happened with another magazine which was called *New Behaviour* that we launched. As I said, *New Scientist* was followed by *New Society*, and then, Tim Raison who was the editorial director... Does the name Tim Raison mean anything? Tim, he later became an MP, MP for Aylesbury, and his, his father actually was Max Raison, one of the two founders of *New Scientist*. But Tim had now become editorial director. He had been editor of *New Society*. And he thought there was a place for a new magazine called *New Behaviour*, on psychology basically. And that was launched. Again, you know, I, I, I was very ambivalent about it myself. I thought, well OK, if they launch this and they give it, give it long enough, you know, give it two or three or four years, it might work. But they didn't, again they closed that

within, within a year. So we had these two, alongside *New Scientist* which was by now selling 80,000, 90,000 copies a week, we had these two failures, sadly. There you are. Some... Well...

[0:19:40]

*Could you tell me something about the decisions you made as editor of New Scientist about the content of editorials?*

Editorials? Ah. [pause] Well, one thing to say straight away about that is that, we started having editorials signed. They had formerly been, as, you know, in the, in the, the tradition if you like of British weeklies, and, even journals like *BMJ*, you know, anonymity was the norm. And I thought this was not a good idea; editorials are written by real people, and we need to know who they are, you know? So that's what we started doing. Which went down very very well. I don't think anybody felt inhibited about writing with their name on. But as for topics, well, oh, very hard to say. We were, we had become much, much more concerned with politics. I recall, it's one of the mistakes Donald made was that he, he, he just wasn't interested in, in the House of Commons and stuff going on at that level at all, so, pretty well ignored it. And I thought that was a mistake. It's one specific thing I disagree with him about. Indeed on one occasion, Lord Avebury, who was then Eric Lubbock, Liberal MP, have you ever heard of him? He's actually quite ill now. But any rate, Eric Lubbock wrote a little letter which we published saying, 'Why on earth does the *New Scientist* always ignore what goes on in debates in the House of Commons, or indeed in committees, to do with science?' And Donald... We published that as a lead letter, with a little rejoinder from Donald saying, 'When the House of Commons discusses anything of the remotest interest, we will cover it.' [laughs] Which I thought was, a mistake. So what, actually what I did, I, I thought, right, we need a, we need a weekly columnist, we need an MP who will write a weekly column for us, monitoring issues to do with science, technology, medicine and so on, in the House and in committees. And I latched on to Tam, Tam Dalyell, who I got to know very well, and, Tam became a regular 'Westminster Diary', it was called, and that went for, I don't know how many years, thirty years or more, something like that.

*When you say you latched on to him, can you say specifically how...*



Latched on to him. I latched on... Well, yes. OK, good question. Tam was known as a, a rather awkward cuss really, asking awkward questions in the House, but also on press visits that he made with the, the Select Committee on Science and Technology. And, I picked up, I picked up some of his comments in the, in the newspapers, on things like that. Perhaps the best example would be that there was, there was a new nuclear, there was a new nuclear power station to be built at Seaton Carew in County Durham, and, Tam made himself very unpopular. It was a question, should this new power station, should it be nuclear or should it be coal-fired? And Tam made himself very unpopular by, by saying, it should be nuclear, and the reason that people didn't like that at all was that Tam represented a mining constituency, and he ought to have the interests of miners at heart, and therefore the new power station should be coal-fired. His reply to that was, 'Well yes, I do represent a mining constituency, but, I also know that recruitment to the mines is plummeting, you know, young men don't want to go down the mine any more. So why should, why are we going to be committing ourselves to a coal-fired power station?' Good point. But as a result, I got to know him, and I asked him, I asked him to write an article about that very thing, which he did very quickly and did it very well, and that was what led me to say, 'Right, OK, how about a regular column?' Which he leapt at, and, did it very very well for, thirty years or more, something of that sort.

[0:24:22]

*OK, thank you. So that's one key decision. Other decisions you then made about, you know, the sort of, the sort of political argument of the...*

About what, sorry?

*The sort of, political argument, or the, the argument in general of the editorials. Or, perhaps we ought to focus on your editorials. How did you decide what to write?*

Well, I would say that, part of my answer to that, a large part of my answer to that is that, is that, I mean I wrote some of the editorials, but we also had some other, very able people, one of whose name was Jon Tinker. Jon had been editor of a birds and bees magazine called *The Countryman*, but he was becoming much more interested

in, in environment and development, and global, global ecological and environmental issues. And, in fact, [laughs] the next bit, well, I'll tell you the next bit in a moment. But, he is somebody I, I got to know, and, in fact I got to know him, I mentioned getting rid of John Hillaby as a regular contributor in one sense, and it was he who said, 'If you want somebody who can do what I've been doing, but doing it better...'. He saw the point. 'If you want somebody, then, there's a young guy in Burford in Oxfordshire called Jon Tinker.' So that's what I did. I met up with John, and... And Jon actually then started writing quite a lot of editorials on environment and, environment and development issues. Kath ought to come in at this point. [talking to Kath] Have you got a moment? Because you can fill in... The reason I'm asking Kath is that, Kath was my secretary at *New Scientist*.

*Ah, I see.*

We've got this very unusual story, Kath being my secretary and... [laughs] But no, we're talking about Jon Tinker, and, I, Paul's asking about, about how we selected people to write editorials, and I, I mean I wrote some myself, but I've said, there were other key people, and perhaps the most key would be Jon Tinker, writing on environment issues. But this also coincided, did it not, with...

KATH: I thought you were going to ask me to tell a very indiscrete story.

No no no no no. Oh you can if you like, yes. [laughter] No, if you think, you've got one that is appropriate. [laughs] But, but no, what... You might be able to put dates on this. Because what I'm thinking is, this also coincided with the, the beginning of what were a whole series of UN conferences on environment and environment-related issues during the, Seventies, early Eighties?

KATH: Seventies and Eighties.

Seventies and Eighties. Which Jon Tinker was heavily involved in, as was Kath, because, they both went off together to set up a thing called Earthscan, which was part of, IIED? International Institute for Environment and Development. But can you, can you remind us about the conferences? What, what was the first?

KATH: Well the first one was, that we... was Habitat Vancouver.

Habitat, yes. OK. Can you remember what the other was?

KATH: [laughs] '76?

Seventy...?

KATH: '76?

It was certainly while I was still there. '76. But... Yes. So, Habitat, which was about... Habitat. Yes?

KATH: Well, it was, it was a spin-off from the conference. The conference was probably, UN conference on...

I can't remember.

KATH: I can't. But Habitat was a spin-off, which IIED was running.

Ah, I...

KATH: It was for NGOs, and press.

*OK, yes.*

KATH: But, the UN conference on...

I was thinking Habitat was the UN conference. It wasn't? No, OK, I'm...

KATH: Well Habitat was the nickname for the conference, that we were called.

Yes.

KATH: But... Yes.

And then there was, the next one would be Stockholm?

KATH: No, Stockholm was, was way before.

Yes? Oh. Oh well let's go back then. Go back to Stockholm. What was the first one Jon would have written for us about?

KATH: Stockholm.

Stockholm. And Stockholm, UN conference on... You probably need to google for this stuff.

KATH: Don't give me any, any warning. On..

[laughs] No, I'm just saying, the thing...

KATH: It was environment. Was it the first big environment...

Yes. Yeah.

KATH: '72?

Yes.

KATH: Something like that.

Yes. But this, I mean these things actually became quite key in what Jon wrote for *New Scientist*. Not just editorials, I should say, because he would cover these conferences as well. And that, all that stuff became actually very important.

KATH: Yah. If you can find the article he wrote after Habitat, but, he wrote a two-, three-page article which was, if you can dig that out, that would be very interesting.

Yes. Yes. We'll try and, or you can dig it out.

Yes.

Can you? Yes, OK. Yes.

KATH: Yes. It's Jon, j-o-n.

Yes, j-o-n Tinker. So there was a period when Jon would have been writing an editorial almost every week actually wasn't there. I mean...

KATH: Yes, suppose so, yes.

Yes. Not every week, but, pretty frequently. It was also a time when, oh... The whole of the media were covering these issues more regularly, yes, there was, Friends of the Earth had started up, Greenpeace a bit later, and so on. So there was a lot of public interest in environmental issues. And we, we actually did a lot on, on those. So we've got Stockholm, Habitat - Vancouver.

KATH: Desertification.

Desertification, yes. Yup. So these are all environmental issues but with a strong scientific input, yes, strong scientific basis.

KATH: And then energy.

Energy, yes, where was that?

KATH: Nairobi.

Nairobi. Yes. OK.

KATH: That was mega.

Yes. And, Rome?

KATH: I wasn't... That, I wasn't...

But what was Rome, what was Rome?

KATH: I don't know.

Mm. Was it food?

KATH: Probably. Because Tony Loftas and you were there.

Yes. But I mean, these really were mega events, and they weren't just something that happened and, you know, everybody went away. They were trying to change the agenda and, so on. And we covered all that stuff very heavily didn't we. So that's why I mentioned Jon as being one of the, one of the key... If you were to go to the index you will find lots and lots and lots of Tinker editorials, and articles as well. Yes.

No I'm surprised to find that, there's no masthead in the first issue. Weird isn't it.

KATH: Oh really.

How your memory plays tricks. I opened this up to show it to Paul, and I couldn't find it, it's not there. It's in the second issue, but not there. Really weird. Really weird. Oh, thank you, yes, that's very very important to us, and I think, it was one of the things that obviously had a lot of readers interested in, in those things. All those issues reflected scientific knowledge, or lack of it, but also triggered off research in various ways, like, desertification is a good example.

[0:32:12]

*So, if the, if the environmental movement then allowed one way in which the New Scientist could become more sort of political generally...*

Yes. Yes.

*What other ways did it do so? We have, we have Jon Tinker writing on environment and development.*

Yes. I think the main, the other main one would be the fact that, during this period we're talking about, and I'd have to look it up, or you can, you can google for it, something called the British Society for Social Responsibility in Science, BSSRS, was founded. And that reflected, it goes back to the comments I made at the very beginning about Haldane and Huxley and Bernal and so on. This reflected a feeling amongst many younger scientists that they, there ought to be more, that scientific meetings for example could and should have sessions devoted to public issues, ethical issues, whatever.

KATH: UN Conference on the Human Environment, Stockholm, 1972.

*Ah, thank you.*

Thank you.

KATH: There's a google-.

Googled, yes. Yes. [laughs] Thanks. The Rome, did you get the Rome one?

KATH: No.

Was that... Was that on food? Oh don't worry, no, Paul can do it. [laughs] So, the BSSRS [sound: bizrus] as we called it, was founded, and there's a similar society in the States. And that, you know, they used to have conferences as well, and, articles written by people from BSSRS would appear fairly regularly in *New Scientist*. In fact I had a bit of a problem with them, because, [laughs] one of the leading... Have you

heard of, of Steven Rose? Yes. Well Steven was one of the founders of BSSRS, an old friend of mine. And he seemed to think [laughs], that because we published, we published an article which I wrote welcoming BSSRS, and I, probably an editorial actually, saying welcome to BSSRS, and why it was important. And then Steven wrote a, a longer article the following week. A day or two later he was on the phone again offering another article, and I would say, 'Hang on, hang on, we've just published two pieces.' And he really got the impression that *New Scientist* was, was going to become the BSSRS magazine, you know, that we were going to be... Well no, there's a lot of other things going on in the world, and... [laughs] So we had that, a bit of a problem there. But, but having said that, we used to, we did quite a lot actually on... And then, Oxford set up a, OSSRS, Oxford Society for Social Responsibility in Science, and we had articles by some of those. So that, that was another major strand I would say in the editorials.

KATH: The UN World Food Conference was 1974 in Rome. But there's loads there on Google.

*Thank you.*

'74? Really? Gosh, that early. Gosh. Thank you. Yes.

KATH: Well that's part of what led to the creation of UNEP wasn't it.

Yes. Yes, yes. Yes, thanks. Yes. Gosh. Yes. So yes, that was another major, working at ethical issues and employment issues and professional issues for scientists themselves in there, what they were doing. Mm.

[end of session]

[End of Track 6]



[Track 7]

*I asked last time for you to clarify a statement that you had made about the fact that, as you were picking up science at school, you got the impression that science and religion seemed to be opposed in sort of, the way the two things were talked about. And I asked how you in particular got to that, and you said that you had taken an interest in Darwin and the sort of reception of Darwin's ideas, and reading a bit on the history of that.*

Mm. Mm.

*It's a bit of a longshot, but do you remember exactly the sorts of things that you were reading about Darwin? Because of course, the, the variety of accounts of it is quite broad....*

Mm. Yes.

*...including recent sort of anti-conflict thesis sorts of histories.*

Yes.

*Do you remember what you were... You seem to have quite a good memory, remembering particular books that you were reading and that sort of thing.*

Yes.

*But do you remember how you were learning about Darwin and the reception of his ideas?*

Well, it, it wasn't only Darwin. Darwin was certainly one of the, well clearly, obviously, one of the people I was reading about, and the debates, the fact that he muted his emerging agnosticism because of his wife's Christian beliefs, and, Thomas Henry Huxley of course became known as Darwin's Bulldog and, took place in the famous debate at a Oxford meeting of the British Association for the Advancement of

Science, and those are the sorts of things, the public debate, really, that I was, I was reading about, and becoming... and beginning to reflect really on, on the conflict between, which he put the first sort of, parts of the evidence in, or, first parts, a huge amount of evidence, but the evolutionary evidence of fossil record and comparative morphology, and all the rest of it, was followed by the advent of genetics of course following Gregor Mendel. And it was really that stuff that began to impact on me and I began to reflect on two, two problems about religious belief, and specifically about the notion that, there is a creator, and a creator would have created everything, allegedly, particularly of course living creatures, and particularly humans with some purpose, some innate purpose. Now, two things began to, from my reading across a wide range really of authors and of, of scientific papers and so on, I began to feel that there were two problems here, two complementary problems. The first you might call a phenotypic problem, that is to say, look at the, look at forms of life that have evolved on Earth, which as a scientist I now believe without any question whatever emerged as a result of random, essentially random mutations and the selection of beneficial mutations in a particular environment. The... I'm sorry, I've lost the thread.

*Two problems, one phenotypic, and...*

Yes. This is... Well, so the phenotypic problem if you like, that is, what things are, what things look like, how living organisms behave. And at that level, the thing which was strengthened of course by my interest later in microbiology was, if this creator created daffodils and koala bears, then this creator must have created the viruses and bacteria and parasites that cause horrendous human diseases, smallpox, malaria, smallpox has gone now of course but, historically smallpox, yellow fever, malaria, and many, many, many more, that are caused by microorganisms that evolved to fit their environment, and to cause those diseases. Diphtheria used to be my particular problem here, because, I don't know how much you know about diphtheria, but, it's a peculiarly nasty infection, which again we don't need to worry about any more because we're all immunised against it, but it used to actually kill large numbers of children in two ways, one, it produces a toxin that poisons the heart, so you get heart failure; it also produces in the throat a very nasty, what's called a pseudomembrane that chokes you. So if you have diphtheria, you're going to either,

unless you happen to recover, which some people did, but the death rate was actually very high and you would die for one of two reasons, either heart failure caused by this toxin made by this bacterium called *Corynebacterium diphtheria*, or you would die because you would choke to death by this horrible membrane that grew in your throat. And so the question... And David Attenborough had another example comparable with this, I think a year two ago, when he said, how can it be that you have this worm, this little mic... this tiny worm that, all it does is to bore its way into, into your eye, into your eyeball, and makes you, you become blind. That's all it does, that's all it exists... that's the environment that biologically fits that particular worm. Well for me, it was, it was the diphtheria bacillus that really, reflecting on, I thought, this clearly is not, it's not consistent with a notion of a benign, all-powerful, all-loving creator. So that was really very crucial for me.

[0:06:01]

And then of course he went on, that's the phenotypic part of the story, go on to the genotypic part of the story, and you realise that all these apparently purposeful adaptations or purposeful features of living organisms, animals, plants, and microorganisms, are, are in fact not the result of design at all; they can and they do emerge out of a succession of random, random accidents, mutations that are entirely random, but which are selected by the environment when they're beneficial to that particular microorganism, or plant or animal. And that, that is really what evolution is all about. So these two things came together for me, and that remains the basis of my... I've got other objections to religious belief but that, that is at the heart of what I now feel.

[0:06:51]

*Could you then talk about what I think was a brief period of belief in God which you describe in your own contribution to, to Journeys in Belief?*

Yes. I mean it was quite curious, looking back. And I think it was... It was at the time when I, when I, almost every day when I woke up I, I would sort of, reflect on these two contradictory accounts of what it's all about, you know, the world as, as we, as we see it, one of which is the scientific world view, the other is a view based on a, some sort of supernatural being or force or... And I, I, there was just this brief, very brief period, a matter of months I think, when I, sort of intellectually I thought, well,

you know, this is... it's very hard to say, to describe, I just felt, this is probably true, this, you know... Yes. The other ex... Really, it was a, it was actually largely a reaction to the notion that what I've just been talking about, can be true. And I thought, well this cannot be true, that all these living creatures and their adaptations was a result of, of pure accident. Actually Richard Dawkins put this rather well some years ago, I can't remember which of his books, but he commented on something that Fred Hoyle, the astronomer Fred Hoyle, said in one of his books. He said it was, it was just incredible, if you are to accept a biologist's, agnostic biologist's view, that all of these things happened by random accident. And Fred Hoyle, Fred Hoyle's analogy here, he said, it's like imagining that you've got an aircraft hangar, I forget which book it's in, you've got an aircraft hangar and it's full of all the parts that are required to make an aeroplane, and they're sitting around in piles all over the... And a wind blows through [laughs] this aircraft hangar, and somehow all these bits come together. It's like monkeys and typewriters. And these, all these pieces come together randomly, and assemble themselves into this very purposeful structure called an aeroplane. It is a daft analogy. And of course, the reason for mentioning it is simply that, it doesn't, it, nobody, Richard Dawkins or anybody else, had never suggested that's what happened. We don't have a succession of random, you know, an infinite number really, astronomical number of random accidents, mutations, all taking place simultaneously. You've got aeons of time. And that is what of course evolution is, is based on. That's what you see in the fossil record, adaptations, creatures, divergence from time to time, speciation when you get a, an animal or a plant that is, is in one area, and maybe on an island, and, the seeds or spores or whatever of that organism, or the animal if it's an animal, itself - might be a bird - goes off to another island and sets up and starts living there, then reproducing. And in time - this is called speciation - in time, that plant or animal, whatever, becomes a separate species, because it is adapting to a somewhat different environment. So this is, I mean this is really very, very very very strong evidence. You don't have to have the wind blowing through the aircraft hangar and assembling lots of stuff simultaneously. You've got aeons and aeons of time for these things to happen. So that was the other, that was when I began to think about this, it was actually long before Fred Hoyle wrote about it, I, it just occurred to me that, yes of course, but people object to the notion of, of the incredibility of, of the forming of, you know, very intricate and purposeful structures. They're not saying this all happened simultaneously, it didn't, there was a lot of time

for the accumulative improvement of an animal or plant by successive mutations, many of which would have turned out to be worthless or destructive or whatever, and most of those just simply disappear.

[0:11:29]

*Thank you. Could we pin down when it was though? I think the Journeys in Belief comes out in about 1968, and I think in the book you say it was about three years ago.*

Yes.

*Which puts it either when you were at the end of your sort of research career, or at the beginning of your journalism career.*

Yes, that's right, it was round about then. But it was a very sort of intellectual belief in a sense, if I can describe it as such; it wasn't a, a conviction in the heart, or a, you know, a bolt from the blue or a Damascus Road experience or anything. It was, it was more of a cold, calculating sort of intellectual belief I would say. That's how I describe it now.

*Mm. And, and that intellectual belief seemed to hinge on the idea of complementarity, that, the view that you can't exhaust the nature of something by analysing it scientifically.*

Mm. Yes.

*That there sort of, other ways of understanding something.*

Yes.

*And I wonder whether, where in particular that, those intellectual ideas came from.*

I think that came from a, a book and I can't now... I mean I used to have, as much as there is there, books on science and religion, I had a huge, a huge quantity. I used to read everything that anybody wrote about science and religion, whether it was

underlining the, the disparity between these two outlooks, or whether it was, whether many of them of course were not doing that and maybe were trying to reconcile these two domains. And it was that thought that you just mentioned actually came from something written by an Anglican theologian, but who was also a scientist, called Charles Raven, a Cambridge academic called Charles Raven. And... But I, I cannot now remember where, where he said that, but that was the idea of, as you said, complementarity, you could actually. And it was a... I mean I look back now and think, this was just an intellectual trick [laughs], to, to try to say, yes you can have two interpretations of the same thing, because, in this case we're talking about something really rather concrete, you know, the biosphere and the way it's developed and emerged. It's not, it's not airy-fairy, it's something very very concrete, on which we have a massive amount of evidence.

*I wonder what else was going on in your life at that time, whether there was a particular reason why, at that time, for a brief period, you believed this, but didn't believe it before or after.*

No. No, I wouldn't say so, nothing I could attribute it to. I just began to feel this, have this belief in the back of my mind. [laughs] And then it sort of, equally, equally painlessly disappeared. [laughs]

[0:14:36]

*I wonder how you felt about the existence of the book in that case then, that it, it records a position that you took for a brief period.*

Yes. Well I, I mean I do actually regret the fact that I, it was during that period, I do regret the fact that that's where I wrote this stuff down in my own little autobiographical bit in there. It is a pity really but, there you are. [laughs] Because the main purposes of the book of course was to bring together experiences of people who had moved in all sorts of different directions. So, no, it is a pity that the book came out at that time.

[0:15:16]

*Am I right in seeing in it, though, a certain admiration for particular kind of intellectual theologians? I think later, when you're writing reviews in New Scientist, you point out that there was a, a Cambridge movement in theology at about this time...*

Mm. Yes.

*...and that involved, a) a kind of, the bringing of kind of critical thinking to theology a bit more...*

Mm. Yes.

*...and two, a sort of self-consciously intellectual way of going about it. I don't know whether that... I think, looking at things you've written afterwards, that that admiration for that kind of theology persisted even after your belief in God waned, if you see what I mean.*

Yes. Well, yes I suppose... I mean, the term 'natural theology' was used of course in terms of seeing God, seeing some supernatural, evidence of the supernatural in the natural world, and, I, yes, I mean I did admire people who tried to, tried to make sense of this. And Charles Raven was one of the leaders of this, of this sort of movement. But at the end of the day, in fact it was before the end of the day, I began simply, not to believe it, not to... I thought they made a brave effort, an intellectually honest effort. In contrast to theologians, you know, those theologians like, I mean, the name of Karl Barth comes to mind who, whose view was that God is wholly separate and remote and, you know, transcendental, and you can't... the whole idea of pantheism or, see evidence of God in the daily world, it's, you don't bother, don't even try looking for it. But, he used to emphasise the transcendental nature of God and religious belief, it's a dif... And he... So that's the, that's what I really rather despised; I felt you had to try, you had to try and make sense of this, of these, these two, two world views, two perspectives on why we're here, the eternal questions if you like. And I think the, the theologians like Karl Barth didn't even try, whereas Charles Raven was one who did, you know, he did try, and he wrote about those sort of things. He kept abreast of the, what was going on in science, wrote about it, and...

[0:15:16]

And of course, the other person, I mentioned I think in our earlier conversation, in a slightly different context, in terms of the social context of science, and that is Julian Huxley. I mean he too, he too, if I can find something. Well, I'll carry on talking. But he too would try to, tried to... [pause – looking for material] If... He felt the need... I mean Julian Huxley wasn't an orthodox believer, but he had a, a sort of, [laughs] nagging urge if you like, to, to believe in something, to, to complement if you like his, his scientific world view. And it's, for me it's illustrated... I think it's in here. [leafing through book] It's, it's illustrated by one particular quote. [pause] Oh, damn, it's one of these books without an index. [laughs]

*This is From Creation to Chaos.*

Edited by me. But it doesn't have an index. [laughs] I just wanted to... Oh dear, that's very annoying. Oh here we are. Well, I think this is it, look. No this, this, this is the thing that nagged... Yah. I think this is wonderful. This is from Julian Huxley, who is not, he was not a conventional religious believer at all, but he was, he was troubled by the, the wholesale rejection of religion, because, you know, because of growing evidence of, on evolution. And he... Shall I read this, or do you want me to...?

*Yes. Oh please.*

Well, I mean I just, this is the sort of thought that used to, I've quoted this many times over. Julian Huxley, *New Bottles for Old[sic] Wine*, 1959, and he says, 'Evolution on the human level, although it has been operating for the barest fraction of geological time, has already produced very extraordinary new results, impossible even to conceive of on the biological level. For example, Dante's *Divina Comedia*, guided missiles, Picasso's *Guernica*, Einstein's theory of relativity, ritual cannibalism, the Parthenon, the Roman Catholic Church, the films of the Marx Brothers, modern textile mills, Belsen, and the mystical experience of Buddhist saints, most extraordinary in principle, it has generated values.' And that, that really was, that, you know, to think that one's talking about all of this emerging out of random mutations and selection, [laughs] is quite... That's, when I said earlier that, that that



biological explanation is, is really rather staggering. And for that sort of reason, we have to accept that all of that came purely by accident, although not in the way that Fred Hoyle argued about the aircraft hangar. [laughs] But I, that's one of my favourite quotes.

*Thank you.*

And he... I mean, so you can say Julian Huxley influenced me twice over, once on the question of the social context of, of social relations of science, and then again later when I began to read his stuff in that sort of mode. Although he was not a conventional religious believer, but he just had this nagging sort of [laughs], yearning to, to feel there was something more than, than his scientific learning had, had produced.

[0:21:30]

*In the period when you were reading on science and religion, did you come across an organisation called the Research Scientists' Christian Fellowship? They later became Christians in Science, the sorts of things that they were... I noticed in...*

Yes.

*...in your chapter, you say that you, you began to patronise the SCM Press, but I wonder whether Christians in Science in particular was a...*

I was aware of it, but not... Yeah, I was aware of it, but... The other, the other... The other book that influenced me at the time was edited by John Habgood, who later became... No, was it edited by...? Or was it Alec Vidler? There was a book, it was called *Soundings*, and it was... No, I think it was edited by Alec Vidler; it had a chapter by John Habgood in it, who was a scientist of course, and, later became Bishop of Durham and Archbishop of York I think. I think. But... And that, yes, around the time of the foundation of the, of the SCM, and, there was a magazine also called *Prism*, which I was much influenced by, which, again it, it was carrying articles by, amongst other things, by scientists who were trying to bring some sort of reconciliation to bear on Christian belief and scientific thinking. I think I've got a...

I'll have a look later. I think I've got a copy of *Soundings*. It was, might have been published by SCM Press, I'm not sure, but I'll have a look, see if I can find it.

*The two people in Christians in Science who seemed to be prominent at the time were someone called Donald MacKay and Oliver Barclay, I don't know whether they...*

Oliver Barclay is just a name to me. Donald MacKay, yes, again, I'm sort of aware of him, and, but he's not somebody who influenced me really, I would have to say. Yes, I'm aware of, and I would have read his stuff at the time. I wasn't influenced in a lasting way by, by his stuff.

[0:23:36]

*Thank you. Can we go back to where we were last time then, which was at the New Scientist. You've got a, a chair in the corner of the open-plan office. And I wonder whether you could tell the story of, one of the sort of key achievements if you like of your time there, and that's the, your involvement in the effort to get the Government to take seriously the problem of antibiotic use on, in agricultural practices.*

Mm. Yes. Yes.

*Sub-clinical doses, but sort of low does-*

Yes. Yes, well, I mean I, Robert Bud refers to this briefly in, in his book. Basically what happened was that, I met somebody called Andy Anderson, E S Anderson, who was director of the Enteric Reference Laboratory at Colindale, part of the public health laboratory service, and he was becoming concerned about the, as all clinicians and microbiologists were, about the growth of, of resistance in bacteria to antibiotics. This of course applied to all varieties of bacteria but in particular to enteric organisms, that is to say, bugs that live in your gut and, some of which are harmless, E.coli in particular, but others cause food poisoning, salmonella for example, and more seriously another, a particular strain of salmonella that causes typhoid fever. So these bugs were becoming more and more resistant to the penicillins and tetracyclines that were used to treat those infections when they needed treatment. And... However, at the same time these two groups of antibiotics were being incorporated into animal

feedstuffs, feedstuffs for cows and poultry and pigs and so on. They were being included there for two reasons, one was to prevent them getting these diseases, so they were being used prophylactically; the other reason was, it was quite independently discovered that low levels of antibiotics would actually boost the growth of farm animals. So they were being put in routinely in all... And it was Andy who, mainly Andy, who began to gather evidence and argue that, you know, that this should come to an end, because you were actually creating, you were increasing the pool of resistance, not only resistance in things like salmonella, but if you were treating a patient needlessly, at low levels, with some antibiotic, then, even if that patient wasn't ill, wasn't ill with an enteric infection, the E.coli in their gut would become resistant to those antibiotics. And that may not in itself matter, except, and this is one of the key things, Andy contributed to our understanding of the fact that this resistance is transferable, it's transferable by little plasmids, little bits of DNA that spread from one bacterium to another. And these are not just bacteria of the same, the same species and type, they spread to other, other species. So, you can have, in other words, a pool of resistance in E.coli in your gut, which won't matter at all in itself, but if you then pick up a, a real infection, a nasty salmonella infection, including typhoid fever, then that bug can become resistant because of the transfer of resistance from the E.coli. And it was that problem really, there are other aspects but that was the main problem that Andy wanted to, wanted to expose and to talk about publicly and achieve some political action on. Well, he wanted a ban, of course, on that particular use of antibiotics. And I got involved because, because of my microbiological background and, but I was now... In fact it happened when I was still at *World Medicine*, I started writing about this, but I was mostly able to be useful when I became editor of *New Scientist* in publishing editorials and articles, by Andy sometimes, and some by myself, which, really highlighting this, this sort of problem. The, the drug industry, the pharmaceutical industry of course strongly resisted any [laughs] suggestions that, that there should be any curbs on the sales of their, of their products. But, what actually did happen was that, the Government did take notice, and, the committee was convened under Sir Michael Swann, it was called the Swann Committee, and they, after looking at all the evidence, including counter-arguments from the drug industry, they decided that there should be a ban on, on these two particular groups of antibiotics, cephalosporins and – sorry, tetracyclines and penicillins. And so, although these antibiotics continue to be used, and could continue to be used, quite

rightly, to treat an animal infection, where they were needed, or a human infection, but they could not be included routinely for prophylactic and growth promotion purposes. And that, that really was something that *New Scientist* was instrumental in, in focusing attention on and achieving that result. It's about the only thing that I can, [laughs] I can attribute in that way to something I, I actually did.

[0:29:20]

*In Bud's account it said that at least one pharmaceutical company entered into 'a bitter personal and very public row' with you. I wonder whether you, I wonder what you can tell us about that, that isn't apparent from the public record. Well your experience of it.*

Yes. What I can do is, I can give, I've got... I wrote this up in one of my books, and I can give you that. But it was, it's so long ago really, the detail... I mean... There was, the highlight of it really, the thing I remember particularly was that we had drawn attention to the fact that certain scientific symposia were being sponsored by some of these companies. Apparently these symposia seemed to be totally independent, objective analyses of evidence, but in fact they were sponsored by, including one at the Royal Society of Medicine, was sponsored by a drug company. And we drew attention to that, and, the then chairman... I, I can show you, I've written this up somewhere, and I'll show you that. And the, the then chairman of the ABPI, Association of the British Pharmaceutical Industry, he wrote, he wrote to the chairman of IPC, International Publishing Corporation, then the owner of *New Scientist*, the chairman's name was Hugh Cudlipp, who you may, you may know the name, came from a very, very famous family of Fleet Street editors, and Hugh Cudlipp had become chairman of the, of the, I think chairman of the general magazine group of IPC. I can give you all the detail in this chapter of a book. And, so anyway, Michael Peretz, who was the chairman of the ABPI, wrote to him, and asked him, you know, drew attention to this outrageous behaviour by Bernard Dixon and *New Scientist*, 'and trust he will take the appropriate action.' He was clearly wanting me sacked. What actually happened was, Hugh Cudlipp rang me up one morning, said, 'What's this all about?' [laughs] He said, 'Will you come and explain it all to me, and bring whatever background material you need.' So I went over there and had coffee and talked, and after about two hours he said, 'Well,' he said, 'I back you all

the way.’ And I’m very grateful for that, very very, because it wasn’t his area, nothing he knew about, but, I showed him all the evidence and so on and so on. He corresponded a little further with Michael Peretz and, who gave in. [laughs] So I was very grateful to Hugh Cudlipp for that, very very grateful. I could have lost my job.

*Did you receive any sort of more personal unsolicited sort of messages about it, or letters or correspondence from particular...?*

No, I wouldn’t say so. Quite a number of academic microbiologists who, when I met them at conferences, would, you know, say, ‘Well done.’ I, I can’t say I got any scurrilous stuff. I’ll tell you one thing in parenthesis. [laughs] I was saying this to Kath a few weeks ago, that, you know, entering into something like that at that time was, that’s what happened, but, if this had happened now, I, I would have been berated on the social media, wouldn’t I? Anybody who takes a public position on anything gets horrendous criticism and abuse on, on Twitter and Facebook and all the rest of it. I’m very, [laughs] very glad that when I was doing this sort of thing, there were one or two other examples, that, we didn’t have social media then. I think that’s something I’m sort of, grateful for, that I wasn’t, I wasn’t obligated to be part of that scene. Could have been quite nasty.

*One of the points that Bud makes is that, the article that you first wrote on this, which was attempting to make clear Anderson’s work for a non-expert audience...*

Yes. Yes.

*...which you, you were at World Medicine but you sent it to New Scientist, you didn’t want...*

Yes that’s right. Yes.

*...want the conflict.*

That’s right.

*That this was, partly because of the way it was written, this was taken up by sort of, non-specialist press and popular media and that sort of thing.*

Mm.

*And, and so your work then was sort of, quoted in different places.*

Yes.

*Which raises the question of, to what extent your experience was of New Scientist's relation with the other media at the, in the time that you were editor.*

Mm. Mm.

*Were you, were you aware of the way in which New Scientist articles were picked up by the wider media...*

Oh yes.

*...and communicated in a more sort of popular discourse?*

Oh yes. Yes, certainly, I mean, but particularly on a, on a subject of this sort, this type of story, oh very much so, yes. Yes. And there were a number of other journalists. Anthony Tucker, he was known as Phil but he was Anthony Tucker, who was science editor of the *Guardian*, he picked this up and he quoted, he quoted *New Scientist* on this as well. He was sympathetic to the, the case. And there was a, there was a local newspaper journalist in, somewhere in, oh I, I simply can't remember now, but there was a local newspaper journalist, I think in Reading, who got very interested in following it, and wrote about it as well. So yes, these things were happening, absolutely, yes. Yes. And, I mean, it happens all the time now of course, newspapers picking up specialist media, stuff from *BMJ* or *Lancet* or, in this case, *New Scientist*. It hadn't, I mean it hadn't... This is the sort of thing that hadn't happened... One of my other criticisms of my predecessor, Donald Gould, was that he, he, he was so focused on, on the immediate things, and not, not particularly

reflective things. He was interested in science news, developments, breakthroughs in the laboratory, and publishing that sort of stuff, and operating almost like a newspaper in fact. So this type of article wouldn't probably, and I hope I'm not being unfair, but would think this sort of article, apart from this, this is the only example I can think of that, that I wrote when I, before we went there. But he didn't, he didn't publish that sort of stuff at all, it was very exceptional for him to do that. He wanted to be the founder, he wanted to be the person breaking the scientific news. [pause] Yes, that's all I can say about that.

[0:35:59]

*What newspapers were you yourself reading while editor of New Scientist?*

Oh. All of the... Probably all of the, you know, the, the heavyweight papers, the *Times*, *Guardian*, *Telegraph*, yes, yes.

*And, were you, to what extent were you linked in with a sort of world of, of journalists, sort of more widely? You mentioned Phil Tucker, so presumably, you knew him, because you were working on this scenario.*

Yes.

*But were there other journalists who you associated with?*

Oh yes, certainly. Well yes, I was a member of the Association of British Science Writers, and I was chairman for a while. I was on a committee, and was chairman for a while. Oh yes, yes, yes that was part of, yes, quite an important part of, of the world really, yes.

[0:36:48]

*And by the time we get to this point in your career, what's happened to the, to your band, and...*

Oh. [laughs]

*Because we, we've sort of, we sort of dropped it.*

Yes. Yes.

*At one point you were going back every weekend, so forth.*

Yes.

*So, by now, what's happened?*

That's from Newcastle to Darlington you're talking about.

*Yes.*

Yes. Well, I mean when we, when I moved south and we... I, I couldn't let go, so I did carry on, and I was playing with this other person called Andrew Rankine whose name you've got in there. It, it was becoming too much really to... I mean I thoroughly enjoyed it, and another Scottish band used to come down and I would play piano with them, but it was, it was, it was gradually going really, and, Andrew in fact went off to the States to run the Scottish Heritage Centre in, with his wife, in Long Beach in California, and, and then he died. So that, that and the recording we, the recording came to an end. So it just, it just, it just gradually went away, it wasn't a daily part of my life, as it had been.

*Thank you.*

Faded away.

[0:37:51]

*And, at the New Scientist, it seems to be you, in the period that you're editor but also before and after, that writes articles on relations between science and religion, which raises the question of, to what extent were other people working on New Scientist interested in this question.*



Oh, hardly at all. [laughs] Hardly at all, I would think. I cannot, quickly, can't think quickly of anybody else who, who was really bothered about that sort of stuff. I think they, quite a few of them thought it was a bit weird that I should be interested in that sort of thing. I can't remember... I can't... For example, I can't remember having any serious discussions with anybody on the staff about that sort of thing at all. I think I was on my own. [laughs]

*Would it be, would I be right in saying then, if you hadn't been the editor of New Scientist over, over that decade, but everyone else around you had been the same which is obviously a bit of a thought experiment...*

Yes.

*Would there have been these reviews of books and these articles, and an interview with John Habgood and things like that appearing in New Scientist?*

Probably not. I mean I, it's a bit unfair of me to say, but I, I would think probably not. There was nobody else there who really had a, a strong or even a, even a weak interest in this sort of stuff, as far as I can remember. [pause] [to Kath] I've got a question for you. Can you... Paul's asking whether anybody else at *New Scientist*, when I used to publish, write a bit about science and religion, but certainly we published articles, you know, by John Habgood, or about, an interview with John Habgood, things, the whole area, and reviewed books, most importantly on science and religion, was anybody else interested in that stuff? I've said no, but I...

KATH: Donald?

Sorry?

KATH: Donald?

Donald. Well Donald was very, Donald was very anti religion.

KATH: Mm.

Well he didn't have my interest in trying to bring science and religion together, to reconcile the two sets of beliefs.

KATH: No.

He didn't.

KATH: No, it was just a personal thing.

He, Donald was, was, Donald was a son of the manse as we used to say, you know, his father had been a clergyman, and, he was very anti religion.

KATH: Mm.

So he wouldn't, no. But I mean, just on the book question, we would automatically, any book that came out on science and religion, it was me really who said, 'We'll review this.' I don't think anybody else there was... [pause] I thought... I thought, if I was getting it wrong, you might remember, but, I don't think there was anybody else. Peter was totally anti.

KATH: Yes.

Dick couldn't care less. [laughs] And so on. I can't think of anybody.

KATH: Martin wasn't interested, was he?

Martin Sherwood? No.

KATH: No.

No. No, I don't think anybody else was, [laughs] remotely interested in this sort of thing. I think they probably thought I was a bit nutty on this, on this one issue only. [laughs] I think they probably thought it was a bit weird, actually, but...

*Did they ever say so?*

No.

*I mean you, when you say, 'I think they probably thought', what, what are you picking up on in order to...?*

Oh, don't... I mean, I don't rate this very highly. It's just, I, I just suspect that they probably thought it was weird. But I don't have any, I don't have any, you know, evidential reason for saying that, or anything I can remember anybody saying.

*So it's not as if at any point someone raised the question of whether you should be doing this, you know, or, should New Scientist be...?*

No. No. I can't remember, I can't remember talking to anybody on the staff about this sort of stuff at all. I really can't.

KATH: No, it wasn't like, anybody had had strong feelings, like they might on some other subjects.

Mm. Yes.

KATH: So, so they, just get on get on with it. [laughs]

Yes. You see people like Nick, Nick Valéry, I've no idea whether he had any... I assume, one tends to assume that he wouldn't have had any religious beliefs or interest at all. Certainly he never ever mentioned it, and we never talked about it.

*Didn't people talk about the things that you had written though? You know, when you reviewed that meeting of the churchmen, it was called something... It was a meeting of the church... Modern Churchmen's Union.*

Modern Churchmen's Union. Yes.

*And when you, and when you wrote reviews of books for Alistair Harding and things like that.*

Yes. Yes.

*Or, you'd done this interview with John Habgood. Didn't, didn't your staff read these things and, and say, [laughs] anything at all about them?*

I, I... All I can... [laughs] All I can say is that I cannot remember actually any, any feedback from... I'm, I'm struggling to try and think about it, but I can't remember anybody picking this up at all. I mean, it's, it's a bit odd, because we, obviously, any other areas we published about, and particularly contentious areas, we, we would discuss at our editorial meetings, but, I don't, I really don't. It's an interesting question.

[0:43:18]

*And perhaps we could compare it to your memory of the level of discussion about the extent to which New Scientist should engage with political debate.*

Oh absolutely, yes. Oh, that, I mean, this was very, very high up the conversation agenda. You know, the, the... Not least because, I mean, I consciously... One was surrounded by all the stuff that was going on. I mentioned BSSRS, and all of the stuff that was being written about science and society at that time, and the social responsibility of scientists was clearly on our agenda. The, the relationship between science and industry was, was a major part of this. And I very consciously appointed two people on the staff who I knew had totally opposed views about this. One was Nick Valéry. You need to go back and dig out the dates, or I can do it if you need help on that. But, we did at one stage have a merger between *New Scientist* and *Science Journal*. *Science Journal* was published by, by IPC, the same publisher but a different part of IPC, and it was, it was designed as a, a British equivalent of *Scientific American*, in other words, a glossy monthly magazine. And that ran for a few years, and then it, it failed, and it just wasn't, it wasn't getting enough readers. But more importantly, it wasn't attracting enough advertising revenue. And we had a merger

between *Science Journal* and *New Scientist*, and part of the deal was that I had to offer jobs to all of the people on, all the editorial staff of *Science Journal*. And one particular I wanted was somebody called Nick Valéry, Nicholas Valéry, who had been their deputy editor, and became one of my two deputy editors. And Nick was very, very strong on, on, well a number of things, on two things in particular, one was the emerging world of consumer electronics and the, you know, he, he knew Clive Sinclair very well, and, we published stuff about what Clive Sinclair was doing in developing his first, you know, the first home computer, and, all that sort of stuff. Now that was one thing, one area that Nick was very strong on. The other was the relationship between scientific research and industry, industrial investment in science. So that was his agenda. But the other side of the coin, the other end of the scale, we had a man called Joe Hanlon, Dr Joseph Hanlon, who, I think it's not unfair to describe him as a draft-dodger. He had come to the UK from the States because he didn't want to go and fight in Vietnam. And now, Joe was representative of the extreme end of the BSSRS world of, of being very suspicious of industrial science, thinking that science really ought to be a matter of public investment, and so on and so on. So, he was extreme left wing, and I, I appointed him knowing that Nick was sitting over there [laughs], and would disagree with everything Joe ever had to say, or anything Joe ever wanted to write about. And that's broadly speaking what did happen. But it was actually, I would call it creative tension [laughs], between the two, and I was in the middle, and I had to adjudicate as it were and keep them, you know, try to reconcile the two, the two voices, both of whom contributed enormously to *New Scientist*. They individually will think that the other person was contributing nothing at all, except a lot of harm. But in fact, from my position as editor, I saw them both as being, you know, being complementary and both important shades of, of points of view. Which in a way, in a way reflected the fact that, when I arrived in *New Scientist*, one of the things I found was, totally different views as to what *New Scientist* was. [laughs] We had an advertisement department that, that was obviously much closer to industry, and saw the possibility of getting in a lot more advertising from industrial companies. In fact our advertisement controller, who was the chief of the ad department, he used to say that somebody had once told him that *New Scientist* is the best soft sell for British industry that we've ever had. And that's what he saw it as, a vehicle for promoting British products and British industry and so on. So we had that. So we had a strand of belief, particularly in the ad department, that was what

*New Scientist* is really about. We then had another strand which was saying, no, it's really a popular magazine, an interpretation of science for non-scientists, that was what it was founded on actually, that is true. But we also had another camp with was, which felt that it really ought to be a sort of, *Private Eye* for the, for the scientific community, you know, being very critical of developments in science, and that was, that was the Joe Hanlon department. So, what I felt was that each of these views of what *New Scientist* was, was quite legitimate, but it was only part of the, part of the total picture. And I used to reflect on the fact that even in a daily newspaper, you do actually have different, different things going on in different places, you have the arts pages and you, you have financial pages where one can assume, if you're writing or editing that section you can assume that your readers in those pages actually know, know what inflation is, they know what, you know, what a discounted, whatever, might... You know, all this sort of lingo, and all the ideas of the world of finance would be commonplace. So I, I sort of consciously thought, well that's really what we should be doing, that there will be different parts, different things going on between the two pairs of covers, and that's what hopefully we did, we achieved. Shall we have some coffee?

*Mm.*

[End of Track 7]

[Track 8]

*Could you try to recall in as much detail as you can the engagement which you had as editor of New Scientist with the, sort of, reception of Uri Geller's ideas in Britain and in the States?*

Mm. Yes, well, I mean, our interest there arose for two reasons. One was that, we became aware that *Nature* were going to be publishing a paper by two people called Targ and Puthoff, who were at Stanford Research Institute, and they were going to be publishing a paper on Geller, Geller's claims, not, I say immediately, not on spoon bending but on remote viewing in which somebody sitting in this room tries to focus their mind on an image which is being transmitted by somebody two miles away, it's called remote viewing in the parapsychology world. And, so that's what the paper was essentially about. It was, it was Geller's other main activity, main claim to fame. We became aware, and surprised really by the fact that *Nature* was proposing to publish this paper. And so we thought we could complement what they were going to do with a, a study on Geller, background of him, and we met him and, and so on, and... And presented our perspective on the Geller affair. So, the fact that *Nature* were going to do it was one reason why we took an interest. The other was, I say we, I... I was astounded by the reception Geller got, not because I instantly disbelieved what he was claiming, but simply because it seemed to me people were just, immediately throwing up their hands and saying, this is amazing. Professor John Taylor at King's College London, who was a mathematician actually, but he, he, on a show, a television show, I think it was called *The Dimbleby Programme*, it was one of the Dimblebys, and Geller did his stuff, bending spoons, and John Taylor said, 'Science has no answer to this.' Now that, scientists ought to be rigorous and ought to be critical and ought to look at evidence, and, think very carefully about what sort of evidence it is, and how to interpret it, and, and so on and so on, and any scientist setting out a plan, a study of Geller, would do it in a, in a rigorous way. But to make a conclusion like that on, on a rather chaotic Dimbleby programme, I thought was, was outrageous in itself really. But there were quite a few people who were doing that, one or two quite big names in their own fields, one at Birkbeck College in London who, who just went for Geller, thought this was, this was a challenge to the whole of science, certainly to the full picture we have of the physical world if people can bend

spoons paranormally, it has implications for the whole of physics, physical sciences, our knowledge of the material world. And there were people who were prepared to just give in without looking at the evidence properly. So we thought that we would, we would do that. Which we did.

[0:03:44]

And, the person who did most of the work with us was somebody I've already mentioned called Joe Hanlon, who... I mean again, there were other people on the magazine, including Nick Valéry, who thought this was absurd, why are we spending time and resources and money and space in the paper, why, for this Geller thing? But, we took it seriously because, certainly *Nature* were taking it seriously. [coughs] So we, we met Geller, and had a session with him. In the midst of which, I think this is mentioned in the article, about, pulling up his chair, is that mentioned in the article? Joe Hanlon and I went to the Montcalm Hotel near Marble Arch one day and had a session with Geller, in which he, after repeatedly saying, 'No, I can't do it today chaps, it's not working for me today,' [laughs] he suddenly decided that it was, it was working and he, he bent this key. And the point at which he did it was, when he leant forward and pulled his, pulled his chair forward, as one does, like this, and we believed that he had put the key under the frame of the chair and bent it in that way. That's what we believed. And he moved forward with such force that he actually split his, the jeans he was wearing. [laughs] I think that's mentioned in the article. And we both, both Joe and I, instantly said, 'You've bent the,' we pointed to it, we said, 'You've just bent it.' And of course he then tried to say, 'No, I'm going to bend it now.' And there's a very, one of the clever things here is, you can actually have a, a spoon or a, or a key that's bent already, but the observer doesn't realise it's bent already, until you start stroking it and then it... [laughs] You could actually do that. It's a, it's a trick used by magicians, it's very clever. I'm full of admiration for this stuff, as, as illusion, essentially. But we... So we, we described that incident, and we looked at a lot of the background of Geller in Israel and his, his management and, and so on and so on, and we did a, a much wider view than... For example, of the two authors of the paper in *Nature*, we pointed out, and this is, this doesn't necessarily mean anything, but it's interesting to know, that one of the two authors was very, very, very short-sighted, and the other one was a former Scientologist. Now, those two pieces of information would never appear in details in a scientific paper in *Nature*. But we felt they were relevant to interpreting what the paper was saying and



the claims that were made and so on. So that, in that sense we were giving a much wider picture than *Nature* were able to do.

*Did you find yourself affected by Uri Geller's likeable personality?*

Oh absolutely. Totally, totally. Even Joe and I, both of us sceptics. When he, when he began by saying, 'Oh I'm sorry, I, I can't do it today,' we said, 'Oh go on.' [laughs] 'Go on, try,' you know. And we were encouraging him, because we wanted... I mean even hardnosed sceptics like Joe and I have a little remote corner of our brain that would like something magical to happen, and so we, we urged him to do it. And you're absolutely right, very charming, a very likeable guy. Absolutely, no question about that.

[0:07:28]

*Could you say more about the, the research group that was put together to actually work with, with Uri Geller, and he had agreed to do so, but then, then pulled out? It was a group that, it was comprised of, Christopher Evans, yourself, Joseph Hanlon, David Berglas, magician, Alan Green, statistician D J Finney, and forensic scientist Julius Grant, and I think you had sort of put this, you called it a research group.*

Mm.

*But, somehow it didn't... You were going to sort of do a series of longer sort of experiments with him I think.*

That's right, yes. Yes, which Geller did initially agree to but then decided not to. I, I really can't say any more than that, because there isn't any more to say than that. We put it together, a carefully selected group of people. Chris Evans was a very important member of that group. Chris was a, a psychologist actually, although, surprising in the sense that he worked at the NPR, National Physical Laboratory, and he was an arch sceptic. He, you know, would look at things very critically. I wouldn't say he was prejudiced or extreme, but he was certainly a sceptic in this, in this context. And he was, I mean I think it was Chris who actually brought the, brought the group together. And all I can say really is that at some point Geller or his,

his advisers, decided it was not a good thing to do. I can't add any, add any more than that.

*And, I wondered why that was the constitution of the group, why those people. Do you remember the discussions that you had in deciding to put that particular group of people together? Or perhaps as you were just saying, you didn't put it together, it was, it was Christopher who...*

It was Chris Evans really who put it together, yes. I mean David Berglas was somebody, somebody I, I knew. David was a magician, never claimed to be anything more than a magician. He was very good, very skilled, and he did, he did some of this remote viewing stuff, you know, claiming to read somebody's mind from across the street, and he was there for that reason. Because, I mean there's a bit of a parallel here really with the affair that, I wasn't involved in at all, but some years later when a, a Frenchman called Jacques Benveniste made claims about, relevant to homeopathy, in which he talked about water having a memory, John Maddox, who was editor of *Nature*, decided to put a team together to go and investigate. And he consciously chose to include an American magician called James Randi, because he felt that a magician, would simply have a different perspective, he would not only know about the tricks that, that magicians use, but he would have just had a wider perspective on what to look for, compared with scientists who, however rigorous they may be, they, they do have a sort of format of knowledge of the way things, the way they feel things to be and the way they, what they expect to be the outcome. And they just may not look in the wider way that a magician would look. Scientists might also be a little bit too trusting sometimes [laughs], if the wool's being pulled over their eyes. So, it's a little bit parallel with that really. That's why David Berglas was there.

[0:11:09]

I knew him because we were both on the, a committee, it was called the Committee for the Investigation of Claims of the Paranormal, which was an offshoot of an American committee with more or less the same... They published a magazine, still do, called the *Skeptical Inquirer*, an American magazine, and it was published by this Committee for the Scientific Investigation of Claims of the Paranormal, rather a long, rather a mouthful, and I was a member of the UK, UK version of that committee, as was David Berglas. So that's how I came to know him.

*When did you join that committee?*

Oh I can't remember.

*And why, again...?*

Why? Sorry.

*When, if not when, then why?*

I can't remember when. Well, it would have been around the time of Geller I think actually, I was beginning to, a slight extension of my interest in religion, that, you know, interest in, why do people, what people believe, but why do they believe it? Why do they have, where did this belief come from? Was it inherited, did it come from authority, did it come from experience? And I think that was relevant here as well, why do, you know... And of course, in the course of that, one met an awful lot of people I would sooner or later categorise as gullible, you know?

*Could you tell me about the experiences on that committee, people you met, things you investigated, claims that you checked?*

Well, I can't give you any names, but I mean I, I think I became aware, as in the Geller context, that there were, there were those people who were extreme sceptics and who were as, as blind really in their scepticism as some believers might be, you know, they were so rigid in their view about how things are and, you know, would reject claims, even without looking at them properly. And those who were much more reasonable and would be prepared to sit back and look at evidence wherever it came from and however challenging it might be. I think my perceptions of people changed in that sense. There were the two, clearly two, two groups of people on the committee. And of course I, well I hope I was a member of the more, [laughs] more reasonable group on that committee. The same thing applies to religion, you know, that, some people are so extreme in their, they're so militant and opposed to religious

beliefs that it drives them to the other extreme, and I've never seen myself in that, you know, in that group.

[0:13:52]

*So, while Geller was claiming that he could see things that you couldn't see, and bend a spoon without applying force, what, without giving me names, what were the sorts of claims that you were investigating in the, in this committee, what sorts of things were people believing in?*

One I, one I do remember is, a claim, and I, I fortunately can't remember the name [laughs], but, a claim from some gentleman who, who said that he, he could drive his car from A to B with a blindfold on. Now, David Berglas, a magician, had done the same thing, but he, he wouldn't tell us how he did it. David happened to live on the Great North Road actually, somewhere near Barnet, just north of London, and, he once drove from Barnet to somewhere else, several miles north, with a blindfold on. And, and he assured us it was a trick. I mean the blindfold was tested, I mean all the things you might hope were done were done. The blindfold was completely opaque. And he had an observer with him. And he, he did what he did. But David insisted it was a trick, and he said, 'You just have to think very carefully about, about what I did.' And, you know... But he wouldn't tell us, as, as many members, as he was, of the magician, of the Magic Circle. I think, I'm not sure whether they're sworn to secrecy but there are certain tricks that magicians use that they will not divulge. And he was one of those. But he, he did, he knew what to look for in observing other people, because he had done these things himself.

*So what, how did the committee investigate these claims?*

We, we... I mean you're asking me something that, I was, I was simply a member of the committee, I didn't... We would, a couple of occasions Chris Evans was asked to go and look at, look at some claims that people were making, but, it wasn't done in a, it wasn't done in a very systematic way really. It could have been. But unfortunately, the same thing that happened with Geller, it happened a number of times on the committee, that people would agree to be tested, and then decide, no, maybe not. [laughs] There was quite a lot of that. But I can't, I can't give you much...

*Did it have a publication, the committee, or a, a...?*

Well yes. There is this magazine, it's called the *Skeptical Inquirer*, which was really the magazine produced by, I think I might have a copy, published by the American members of the committee, which is where it all began really. I mean we were an offshoot of, of an American group, and, and they had this magazine, to which people in the UK committee would contribute from time to time. But it was, you know, the balance, the sort of, balance really was across the Atlantic, with the people, the people in the States. I can't remember, the leading light, who actually died only a year or so ago, I've forgotten his name. It'll come to me.

*Finally on that then. What did your colleagues at New Scientist think or say about that, about your membership of that committee, or about your interest in those...?*

Oh I don't think they were even aware of it. I don't think that was an issue at all. I might have talked to one or two people about it, but... There were certainly people on *New Scientist* who thought that spending time on Geller was, was futile, that was quite clear, Nick Valéry in particular, didn't see the point. [laughs]

[0:17:45]

*Could you tell me then what you remember of meeting John Habgood for the 'In person' article you wrote on him? Which seems to have been based on an interview of, of some length anyway, although I don't know...*

Based on what, sorry?

*Based on a reasonably in-depth interview with him.*

Yes.

*I don't know what you can remember of that meeting. What was striking about...?*

Oh, I found him, you know, quite charming, and, you know, warm and friendly and all those things. I... I think, the main thing I remember was that, when I repeatedly asked him about his, his conversion, how he came to believe in, in the Christian, the Christian story if you like, and he repeatedly told me about the occasion when he was walking around Cambridge and he, the thought came to him while he's walking around the streets of Cambridge that, people he saw were ugly. [laughs] He looked at people's faces and decided that all these people were rather ugly. And, then he, later in the day, began to reflect, and thinking, that's a, you know, not a very nice feeling to have, really. [laughs] Not a very gracious or, human thing to do. But, but he, that's what happened to him. He was honest about it, which, all credit, he, you know, to come up with this some years later. What I never, I couldn't actually get out of him was, how that led him to, to Christianity. I mean I... Or even to a belief in God, you know. You might think, well I've been, you know, that's not a very worthy thought to have, that everybody in the street looks ugly, agreed. But, I never, although I repeatedly asked him about this, I never really got a clear message back from him as to, you know, why he went from that feeling, a somewhat ungracious feeling, unworthy feeling about other people, to a religious belief, and particularly one with a very clear label on it, Christianity. I didn't, I just didn't get anywhere, I didn't get that.

*Do you remember where the interview took place, where, where you were?*

[pause] I think he came to *New Scientist* actually. Really, I actually can't remember. I really can't remember. It was all, I mean my impressions of him were all renewed quite some years later when I... Have I told you about chairing the debate in Edinburgh?

*Not on the recording. This might be, we're skipping ahead chronologically but I think it would make sense to tell this story now.*

[0:20:35]

Yes. Yes. Yes, well I, I was on the board of the Edinburgh Science Festival for quite some years, and on one occasion decided to invite John Habgood to debate with Richard Dawkins. And the event duly happened. The main thing I remember about it

very very clearly was that, although we didn't take, it was a debate but we didn't take vote. I think we probably should have taken a vote both beforehand and afterwards, for the reason I'm going to give you, which is that what actually happened was, they both, John Habgood and Richard Dawkins, gave introductory comments about, you know, the, the, the case for religious belief and the case against religious belief. It wasn't particularly sectarian, but it was just on belief in God and immortality and so on, basic religious ideas. And what actually happened was that, at the beginning they both gave their opening statements, and then, we began to get questions from the audience, and it went on somewhat. And I got a vivid impression, and I've still got this impression to this day, that when it started, for the first half an hour or so, the audience, and it was a self-selected audience, I mean this was a, an event advertised in the programme for the Science Festival, people turned up because they read about it. So we, we didn't have any information about the composition of the audience. But, I got a clear impression that, for the first half an hour or so, people were warming to Richard Dawkins and his comments, and they, not very impressed by Habgood, possibly because John Habgood, although he had been heavily involved for quite a long while in writing about, and interested in and writing about science and religion, he frequently gave the impression of somebody who hadn't thought about this stuff before, you know? He would say, 'Yes, mm, very good question, mm.' [laughs] Or he would, he would waffle, and he would... He said, more than once he would say, 'Well, of course these are profound questions.' Yeah, all right, OK, yes they're profound, but can you, deal with the question? [laughs] And I think what happened was... And Richard was being much more logical, rigorous, and, and sensible. I had the impression for half an hour or so that people were pretty well on the side of Richard Dawkins, and Habgood... Yes. It changed, turned around, it turned around in the course of the debate. And I think it turned around because, Richard, who I've known for, way back, back, he used to write for us at *New Scientist*, and he began to be obnoxious, which we know he can be, I mean... He began, you know, really, short-tempered and obnoxious and arrogant. Habgood became warmer. [laughs] More human. And I think this changed, I got a strong feeling from the applause and the, just the general demeanour, and looking at people and their reactions, I got a strong impression that the whole thing turned around. Whether that should or would have affected their verdict in factual terms, in terms of a motion if we'd had one for this

debate, and a vote, I'm not sure, but, but certainly that was my impression of the, of the tenor of the actual occasion. And I think that's why it, why it changed over.

[0:24:35]

*Do you remember whether biological evolution, or evolutionary science generally, was a feature of the discussion?*

Oh yes. Yes, yes, yes. Oh yes it was, yes, very much so. And, I think John, I mean again, it came, there was this issue about evidence of evolution and of genetics and of the mutation of genes and the way, the mechanisms of evolution, of course, and especially as Richard Dawkins wrote his book called *The Selfish Gene*. So that, that was part of the, part of the substance of the, of the debate. I think, my memory of that really was brought back, brought us back to the word you raised earlier about complementarity, that there could be, as Charles Raven had argued, there could be two different complementary interpretations of evidence. So that one wasn't driven inexorably to conclude that life is purposeless because the mechanisms underlying molecular evolution are random; you couldn't, you weren't driven to believe that therefore the whole process is meaningless. So, Dawkins – sorry, Habgood, made the point repeatedly that, you know, you're only looking at it from one perspective, you know, we can, we can take another perspective on things and see it as, see it as, seeing evolution as being creative. But that doesn't take you very far, because the creativity, so-called creativity, nonetheless, as Richard pointed out repeatedly, was based on, on random accidents. We didn't get much progress on that really. But certainly that, that, those questions did come up repeatedly, yes. Yes.

[0:26:29]

*Could you tell me then about your relations with Richard Dawkins before that point? You said that he had, you had known him for a while, he'd been contributing to New Scientist.*

I think... Yah, when I first, when I... I mean he had written for us a number of times, and, I think when I first met him I, I concluded, and I think I was probably right, he was very shy, he was very reticent, very shy. [laughs] Surprising thing to say nowadays that he has become such a well-known figure and rather, he does have an



arrogant side unfortunately, which is an awful pity, because I, I myself agree with him entirely on his analysis of the natural world and its significance or lack of. But, I don't like, you know, the way he presents himself quite often, I think he is, he, he is arrogant. And maybe that came out of what was originally shyness, I mean this does happen, people who are shy and begin to be more assertive because of it. They want to overcome their shyness and they go too far. And I think, I'm being an amateur psychologist here, but I think that might have happened with him. But otherwise, relations were good and he... I mean I... I mean I, I... Did you pick up Michael Rodger's book by the way?

*It's on the way, I've ordered it.*

It's on the way?

*Yes.*

Yes. Because, he tells the story of the genesis – shouldn't have used the word genesis [laughs], where the selfish gene came from. The bit I remember about that, and I think this is correct, is that, the idea of *The Selfish Gene*, that the genes are these, these things that, things that are selfish, they want to perpetuate themselves, and they use human cells and human organisms for their own self-fulfilment in propagating themselves, this idea came at least in part from John Maynard Smith, and, there was... What I do recall was a discussion with one of my colleagues at *New Scientist* who had heard about this, and heard about the possibility of a book, Richard Dawkins writing a book, and also a possibility of a, of a television programme, I think it was a *Horizon* programme, which, which, I think Richard Dawkins, I think I'm right, don't... You'd need to check this. I think it's correct to say that Richard Dawkins declined the opportunity to present that programme, because of his reticence, and that, and that John Maynard Smith actually did the, did the voiceover, you know, did the presentation. I think that's correct, but you would need to check it. It may be that Michael Rodgers can confirm that, because Michael knows Richard very very well. I'll, I'll check it with Richard.

[0:29:24]

*When you first met him then, where were you, where would you have been? Under what circumstances did you first meet him?*

Oh, he came in the office to, to talk about an article. Not with me but, one of my colleagues, Richard – sorry, Roger Lewin, was one of my colleagues who had the contact with Richard Dawkins originally, and other people in Oxford and Cambridge used to do all the, much of the commissioning of biological sciences articles. So it was when he came in to, to see Roger one day.

*And this might be impossible to answer, but, how was shyness manifest? I mean how, what, what were you picking up on in deciding when you first met him that he was shy, or was it...*

Oh, I...

*...far vaguer?*

Just, just, really he wasn't, you know, he wasn't one of these dominating people with a loud voice who's full of himself. He was just, relatively reserved, you know. I can't say any more than that really.

[0:30:24]

*Thank you. Now, Selfish Gene got a good review in New Scientist, but, as far as I can tell there wasn't a sort of feature on it, in other words it, I mean it, the magazine just carried a, a review of it in the way that it would have reviewed anything.*

Yes. Mm.

*Which, you didn't, you didn't write the review of it. I'm sort of comparing The Selfish Gene to Jim Lovelock's book that comes out in the same decade.*

Mm.

*And, the magazine seems to make more of that, say, than The Selfish Gene.*

Yes. Yes. Yes.

*But, sticking with The Selfish Gene, what was your awareness of it and response to it at the time of its publication as editor of New Scientist?*

Well I, I mean I thought it was a, a very good book. I think, I mean I think, you and I are now talking with the benefit of, of hindsight, that this, we didn't... I don't think we saw it as becoming enormous, you know, a huge, a huge publishing bonanza which it did become, huge success, and of course leading to the later books, *Blind Watchmaker* and others. So I think, we must, you know, we can't, we can't go back really to that, to the time when it was originally published. I thought it was a competent book, an interesting book, well written, certainly. I don't think I saw it as becoming a, a really massive, a massive hit which is what did happen. [pause] And yes, I mean you're quite right, because when you think about it, the selfish gene is an idea which got people's imagination, but so of course did the idea of Gaia. I just, we just made that judgement. Jim, Jim was particularly keen to get... He had written a scientific paper, or quasi, you know. I forget the name of the journal, but he published in one of these journals that were sort of, philosophical, philosophically related. It wasn't a research journal in other words. But he wanted to get the ideas across to a more general audience, and that's what we were able to do.

*I wonder, this is related to, the question about not at the time particularly seeing Selfish Gene as, as big, or as striking. Did it, did you yourself read it in relation to your interest in science and religion, or, or separate from those?*

No, I don't think so. No. It's obviously relevant, but I don't think it was in that context that I... No, it was, it was the, you know, the simple idea which he had come up with, and which John Maynard Smith had, had written about. It was one of those, well, of course Richard later described this sort of thing as a meme [laughs], an idea that spreads around, you know, as genes do, and so the idea clearly had the potential of becoming a, a meme, and something that people from, a wide as possible world of readers would pick up and talk about and understand or think they understood.

[End of Track 8]

[Track 9]

*Could you tell me, then, I think it would make sense to tell me about the, the origin and development of your relations with James Lovelock from the sort of, you know, beginning to the present, however infrequent or... But, but I know, I know from things that you've told me off the recording that it wasn't just simply, to get this article written and then, never heard of him again.*

Yes.

*It's a sort of, more...*

Yes. The main thing we interacted on over the years, I mean he, he wrote that first article, and which got a lot of attention of course. And I've met him at various, various occasions over the years, including, he gave a talk for us at, in Edinburgh at the Science Festival. I think the main thing I would want to highlight about that, about, you know, conversations with him over the years, is, is that, I feel that he himself was a bit ambivalent about what he meant by Gaia. This might be unfair, I should put that in parenthesis, but, you know, the notion of the, the biosphere, the living, animals, plants and microorganisms on Earth, you know, as a, as a whole system. Well that's the, I've used the word already. Did he, did he say or imply or offer the belief that, the whole of the biosphere was a, a living organism, or a living system? [laughs] And I think this is crucial to... I mean people, a lot of people who leapt on this originally began to feel that he was saying that the whole of life on Earth is, is really one big living organism, albeit expressed in different forms. But it, it can be legitimately considered to be a, a living organism. And I think he sort of, went along with that to some extent. Because he did become a guru, and he rather, I think he rather liked, he's only human and he rather liked people listening and being inspired by what he said, and, that's fine. But I think he had begun to go a little bit too far, and I think he had to sort of, in his public comments he had to step back somewhat and say, well actually I'm talking about a system; I'm not really talking about a living creature or a living, a living organism. And we've talked about that on and off over the years, and, I mean he's clearly gone back to the, the notion of a system, you know a living system you see. It's not really earth goddess Gaia, a

goddess, an organism, it's not really. So maybe, it may be the title actually, maybe, which was suggested by, William Golding? Maybe that, maybe that has sort of misled some people about what he was saying. But I think otherwise, you know, to think of the living system as a whole, and its perturbations and its, its strengths and, and vulnerability, I think that's all, it's all been a very useful metaphor and a scientifically valid point of view.

*Who was it at New Scientist that was making the decision that this article on Gaia ought to appear? I mean, I realise you're the editor, but you have this weekly conference, and...*

Yes, well it was the other way around. It was, it was somebody called Martin Sherwood. Martin was a chemist. He had been editor of, *Chemistry and Industry*? [calling to Kath] Martin had been editor of *Chemistry and Industry*? Yes?

KATH: Yes.

That is right, isn't it, yes. The magazine of the Society of Chemical Industry. And he used to write for us when he was editor of *Chemistry and Industry*. And, and invited him to come and join us, which he did, and, he, he didn't only write about chemistry, he wrote about other topics, including, he did quite a lot of the stuff on science and politics, you know, he used to go to the select committee of the House of Commons, Science and Technology Committee, and do reports on that for us. But it was Martin who one day, he came in and said, 'Have you heard of somebody called James Lovelock?' And I said, 'Vaguely.' And then he told me that he had met Jim Lovelock at some event, and Jim had recently published this paper in this journal whose name I can't remember. You'll find it if you google, find it easily. And, so I... He showed me a copy of the article, and he explained that Jim was keen on writing for a wider audience. And I, I just immediately said, 'Yes, yes, yes, please go ahead.' So Martin went ahead and commissioned him to write an article. So that's how it happened.

[0:05:19]

*Before I ask you about why you left New Scientist, are there other episodes, other achievements, other decisions that you would like to talk about before we get to the point of leaving?*

[pause] I think... I think that the main height of experience is, [laughs] is occasions when we went out on a limb somewhat and published something potentially actionable, you know, something that, you know, we could easily have been sued for, but we didn't because we took such great care. And, I mean an example of that would be... [laughs] Quite a few of these stories would involve Joe Hanlon, who came to me one day and said that, Steven Rose's biology department at the Open University was, which had been set up on good democratic principles, and everybody in the lab would decide on what research grants to apply for, and it was all done very very... And Steven, do you know Steven Rose at all?

*I know of his work.*

Yes, well you know of his work. OK, so...

*And, you mentioned that you, you had, but you haven't said much about your relationship with him.*

Yes. Yes. Oh well I mean, he's quite a friend really, although I never went as far as he did in some of, some of his, his political agenda. But anyway. He was running the biology department at the Open University, and, he came in the office from time to time and met Joe, and then Joe actually started talking to other people. Well, started... He'd got some information about, about Steven's lab that had been set up on unusually democratic lines. And Joe came in to me one day and said, 'You know about Steven's department. There's an open riot going on there.' I said, 'What?' 'Awful.' He said, 'All the original ideas of being democratic in what research to do and what grants to apply for, it's all been thrown out of the window. Steven's become totally autocratic in the way he runs the lab.' He said, 'I would like to write about it,' he said, 'but, you probably wouldn't want that, because you're a friend of Steven's.' I said, 'Well no, I mean... Yes, I'm a friend of Steven's, but if what you are telling me is, if it's true, then of course we, I think we should publish it.' So I sort of gave him

permission to go and investigate more. Well, [laughs] I remember, I remember very clearly, because it was, it was the day before the Christmas Eve, everybody else had gone home, and I'm sitting down with, with Joe, going through his, the draft of his article on Steven Rose. And basically what happened was, I was sort of reading it through, and I had Joe sitting there, and I said, 'Now this point,' there was some point in the article, 'where did you get that from?' And so he gave me the name of this woman in the lab who told him that. So, OK, right, fine. Go a bit further on. 'Now what about this Joe?' 'Oh,' he said, 'that was,' the same, same name. OK. So we went, next page. 'Oh now, I wanted to ask you about this one. Where did you get that from?' 'Oh that was...' [laughs] It was the same. He had been talking to one, and only one, disgruntled member of Steven's department. And this was all taken from this one person. It didn't, it didn't stand up at all. And I did ring Steven and asked him one or two things, which I discovered were actually just simply not true. So we didn't publish it. So, as well as articles that I'm proud of in *New Scientist*, and, you know, pleased we did publish, there are quite a number of articles that didn't appear, for that sort of reason.

[0:09:30]

One that is, one that's sort of in between here is, is, we got a, we got an approach one day from a, a man who worked at FAO in Rome, and, there was at that time a person with huge public, what's my word? A very well-known plant scientist called M S Swaminathan, M S Swaminathan, an Indian plant scientist, a very able man, who actually had been one of the leading lights of the, what was called the first Green Revolution in the 1960s when new varieties of, of various crops, particularly cereals, were developed. They were developed by mutation and selection, by exposing seeds to radiation, and then planting these out and looking for seeds that had had a mutation that gave some beneficial quality to the crop, plant, pest resistance, or, nutritionally, higher levels of vitamins or whatever it might be. And that was the whole basis. [laughs] Surprisingly this attracted no public criticism at all, although it was based on radiation. Whereas twenty years later you've got genetic modification, which, you know, got people really, really, very, very upset and angry and, wrongly so, but... The first Green Revolution, it was, although it was based on irradiation, didn't attract, really, as I remember, no public anxiety at all. Anyway, this man had, Swaminathan had been one of the key members of the team developing this sort of approach to plant breeding. And, we had an article submitted by somebody, also a disgruntled former



employee of FAO, who came to us and made certain allegations about the fact that Swaminathan had done something dishonest in, in using, in publications, using data on the nutritional quality of a strain of wheat, I think it was called Sharbati Sonora, Sharbati Sonora wheat, and Swaminathan had allegedly used data, analytical data, on the amino acid levels, and therefore the nutritional value of this, of this crop, at a time when these measurements had been shown to be faulty. That was the claim. So, I looked at this. Joe was also involved. [laughs] Anything potentially, potentially problematic came from Joe. I'm exaggerating. But, we looked at it, and I had a few questions. And, to cut a long story short, we went back to the author, and, we also contacted Swaminathan. And we looked at what they said. And I concluded... Oh, and we met, we, of course like all large publishing companies, we had a legal adviser, and so we went and took the evidence to him, a man called Peter Mason. And, we decided to go ahead and publish this, although it was, certainly potentially actionable, it was casting aspersions on somebody publicly very well known in the plant, particularly in the plant breeding world. So we went ahead and we published it. And we, we had a, a letter from Swaminathan instantly, telling us, asking us if we would please withdraw our claims and apologise. Well we didn't. We stuck to our guns. Nothing happened. Because we had checked it out so very very carefully. The footnote here is that I actually met Swaminathan at a conference many years later, and found him totally charming. [laughs] And he said, 'Oh yes, I remember.' And he, of course he remembered the whole thing. And we... The main thing I remember is how, how very friendly and charming he was, and... But, the lesson there was, careful, very careful preparation and checking.

[0:14:23]

*One way of getting a sense of what New Scientist was in the period is, as you say, to think about the things that didn't appear. And, are you able to characterise the kind of submissions or stories or articles that you were perhaps sent as editor during this period that were likely to be dismissed, and the reasons for that? So, the sorts of things that you wouldn't consider publishing, leaving aside questions of, sort of legal problems or problems about people's reputations and so on.*

Yes. Yes.

*Was there a certain kind of content that tended to be not exactly...?*

Well I... Yes, I mean a main one, but, which was both articles submitted but also letters, would be those who, [laughs] I mustn't use the word nutter, must I, but... Articles that clearly came from people who were simply wrong, clearly wrong, and recognisably wrong, in saying that, I mean, two commonest would be, Darwin was wrong, or Einstein was wrong. And, you know, you... I mean these, there were certain diagnostic signs here, the way the thing was typed even made you suspicious of an article like that. So a lot of those went in the bin. And more, more letters than, than articles actually, we used to get a lot of letters, which I guess nowadays would actually be published on, not on, not in the magazine but online, you know. So I didn't have that problem. But that was, that was one category of an article which just got rejected immediately. Well, we mentioned the legal thing. Things, things that came from, you know, just, you know, dubious, what we thought were dubious sources really. And, and a third category was, I mean reflecting our interest in the whole political spectrum, was from people who, because you had published an article by them, there's another one in the post the next day. [laughs] This even happened with Steven Rose. We, we published an article welcoming the arrival of the British Society for Social Responsibility in Science, and an editorial saying, great, you know, we published an article by Steven and his wife Hilary Rose, a two-page article, and I wrote an editorial saying this is very welcome. There had been similar moves in the past, in Cambridge in 1930s for example, to set up something like this, but it's now happened. So it was very very welcome. Within a few days I got another article from Steven and Hilary Rose [laughs], saying many of the same things, saying them in a slightly different way. So I said, no, you know. Anyway, and so that was a bit of an issue for a while, because he really began to feel we would publish... You know, when they, when BSSRS started focusing on particular issues, you know, particular questions, whether it's racial discrimination or whatever it might be, he would expect us to automatically publish an article. So that didn't just apply to him, there were other people in the same way who more or less expected us to. On atomic, on nuclear power for example, we published a wide range of views on. We published articles by Friends of the Earth, when they were sensible articles on nuclear power, the dangers of radioactive waste disposal or whatever it might be, but we published articles by people like the chairman of the Atomic Energy Authority. And in those cases too,

you know, when we published on this, this week, here it is, and they would be following up, wanting more next week, or the week after. That was quite a significant problem actually, because they thought, you will become the house journal of, BSSRS or, whatever it might be. So I, I think that's probably one of the, next to the nutters' articles, articles of that sort were probably way up there in terms of numbers of articles that one turned down.

[0:18:36]

*Interesting. When you say that you felt that some had come from dubious sources, how would you identify a dubious source?*

Sometimes it was because the typewriter they were writing on, [laughs] was very old-fashioned, or something, and they, there would be holes punched in the paper, or they'd use green ink, or... [laughs] I mean, you know, that sort of thing. I mean, literally true. But, it's very hard to... You just, for one reason or another, you... You knew about somebody, or you had a suspicion about them or whatever. But, I mean we would, we would read these articles, I mean the main thing, we would read them and look at the strength of their arguments, and, how plausible it seemed; if it's an area you didn't know well, you would refer, you would refer things... You know, we didn't referee articles, review articles in the way that journals do, but on occasion we did. Particularly people who were very very pushy, and, I mean one article of that sort I do remember is, somebody who, he claimed to have, he claimed to have discovered a new type of red blood cell, and, he had submitted to the, I don't know, *British Journal of Haematology* or whatever, and they had rejected it. So, getting desperate, he came to us. And I said, 'Well we don't publish original research papers.' 'No, but this important, and, it really is important.' He claimed to have discovered a new type of red blood cell which he called a Penderocyte. And he had these pictures, photomicrographs, of a tube. He had a capillary tube, and it had blood flowing through it with recognisable erythrocytes, red blood cells, flowing along. But then, when you looked carefully, you would find one that was sort of, stuck on to the inside wall of the capillary tube. And he showed me a little movie of this. And, so, it started to flow, and this, this cell would go down there. And then when he reversed the flow, all the other cells were moving as you would expect them to, this one would go a little bit, the same distance in the opposite direction. I looked at this, and I

thought, well, this is a red blood cell that, it's like, it's attached to a, maybe it's a little, a bit of fibrin, and it's attached. So you, you can imagine a, you know, in a swimming bath, you know, you've got the water flowing this way and you're sitting there and you've got, you've got a life thing around you, and you've got, you're on a rope. And as the flow goes that way, it sends you that way, and when it's reversed you go the same distance... That's what I worked out. So anyway, he was very pushy, and, [laughs] and, he, he prevailed upon me to get this... He said, 'It really is important stuff,' you know. 'Get it reviewed.' So I sent it out to a reviewer, a man at King's College Hospital in London, a haematologist. And he rang me up. I remember it clearly. He rang me up and said, 'Yes, it's very interesting.' He said, 'I think what you've got here is, it's not a new type of cell at all, it's a cell that's attached to a piece of fibrin.' [laughs] Is what I worked out. [laughs] So, I mean that's an example of reviewing something, because, really the person concerned was very pushy. And it would have, if it had been true that he had discovered a new type of red blood cell, that would have been very important. But, that was the, that was the type of evidence.

[0:22:23]

*Now, I know that you did publish what you must have regarded as reasonable letters on, say, science and religion. What, do you remember the content of the sorts of letters that you wouldn't have published?*

What, on science and religion more generally?

*Mm. On science and religion.*

I, I think, in that category, in that area, things that were simply assertive, you know, they were just, you know, they were just telling you, [laughs] and started arguing or trying to persuade you, the reader, what, you know, what they wanted to persuade you of. There were some articles that people would just sit down and... And they probably were the type of letters that people would send off to, not just *New Scientist* but send off all over the place. And that, that was, that was the main thing I would, I remember. And they went in the bin of course.

*And you said that there were, there tended, Darwin was wrong tended to be a sort of, certain theme of articles that came.*

Mm. Yes. Yes. Oh yes, yes. Yes. And, Einstein was wrong, yes. Oh yes, yes quite a lot of those. But they were instantly recognisable. [laughs]

*Thank you.*

And then we had... You know, we had one, one rather sad regular correspondent who thought that, it was a she I'm afraid, but she thought she was being got at by, by aliens, you know, and that sort of thing. But, really that's not interesting, it's just, I'm sure all magazines and newspapers get letters like that from people who think they're being, you know, they're being attacked, or, whatever. They went in the bin. But, I think nowadays a lot of letters of this sort do get published online actually.

*Well especially ones that just sort of post themselves, you know, just automatically.*

Yes, yes. Yes. That's right, yes. Yes.

[end of session]

[End of Track 8]

[Track 9]

*Could you describe your life outside of work at the time that you are editor of New Scientist, so that's potentially through, through the Seventies.*

Mhm.

*You talked last time a lot about work, but, it's not clear from the recording where you're going home to at night, what you are doing, who you are living with, all of that sort of thing.*

Yes. Well, in a way there's not a lot to say. I mean that may sound curious, but, in the sense of my, the centre of gravity of my life was, was really work, you know? And this happens with many people. I mean I got married in, what, '63. I mean the dates are in *Who's Who*. Had three children, born during the 1960s. And, so, I mean, for me the, the Seventies were so, so heavily orientated towards not only *New Scientist* but work generally, and going to scientific meetings and all the rest of it. But, I mean I, not a lot to say about home life, except, I mean the other, the bit I have talked about is the music, my band was still running, but it was, it had, it had become more difficult for obvious reasons, time. But that, that continued. But I don't know, I'm not being evasive, I just don't really have a lot to say about, about the home background. As you know, I got divorced and, that was a measure of the fact that, I'm afraid, the fact is, the only comment I could make would be that, my then wife had no interest, not only in *New Scientist* and science, but in, in politics and current affairs generally. So, there wasn't that element, there wasn't that link if you like between, between my personal life and my professional life.

*How had you met in the first place?*

Oh in Newcastle, in the department. She was a student there, doing a bacteriology degree.

[0:02:08]

*And, in the same way that I asked for your memories of time spent with your parents, what memories do you have of time spent with your children, before the divorce, things done with them?*

[pause] Right. Well, a few comments there would be that, the eldest is called Jacqueline, who always, [laughs] always wanted to be a teacher, and was deeply attached to teachers at school and education generally, and, she did indeed become a teacher. So she's a person whose ambitions and her career matched absolutely perfectly. And that's all she ever wanted to do, and that's what she became, a very, very happy, successful teacher, now, now with three children of her own, my grandchildren. James, a slight problem with James in the sense that, although he was happy enough when he was young, during his teen years he developed this condition called compulsive obsessional disorder, which you probably know about, and which became really quite disabling for him mentally, and he's never worked, to this day. He lives with his mother, and he has never managed to work at all. Stuart, youngest. Oh, in parenthesis, I did start teaching James the piano, so that was one link which we had, which, you know, he took to very well, and, I got him up to, I don't know, I can't remember how far I took him, but, to the point where I thought he needs a real teacher, [laughs] a proper music teacher. So, that's that. Stuart, the youngest, was always an avid reader and, very orderly and systematic in the way he did things, and, his books laid out very very neatly and so on and so on. And, he was always interested in language and writing and literature, and did a degree at Reading, got a First in English literature. Spent a while in theatre, working in Pitlochry, in the theatre there. But for the last ten years or more he's been one of the reporters in Edinburgh, in the Scottish Parliament, working for, as a reporter for what I must not call the Scottish Hansard, but you know what I mean, it's called the Record of the Scottish Parliament. So that's what he now does.

[0:04:39]

*Thank you. And, to give us a sense then of your, your focus on work then, would you be able to describe a sort of typical working day at the time that you're editor of New Scientist? So, including sort of, what you do in the morning before you go to work and what you do when you get home.*

[laughs] I'm not sure there was a, there was a typical day. I mean for example, anybody's who's worked in the media, newspapers or magazines, will recognise the importance of press day, which is when it all goes to bed and you're writing the last-minute things and, and so on. And, that in our case was Tuesday. As I say, I'm not sure there was a typical day. I would, probably as soon as I woke up in the morning, be thinking about some of the issues we were covering. I mean I remember waking up thinking very hard indeed on one occasion about, I was due to go and give evidence to, not in court but, at the Old Bailey but not in court, but to a counsel, regarding what became known as the ABC Trial, Aubrey, Berry, Campbell, were three people who were charged under Section 2 of the Official Secrets Act, sometime in the 1970s. It was to do with defence communications, and the one that was close to us was Duncan Campbell, who used to write for us regularly. The offence was that they had revealed official secrets. And I, I remember waking up somewhat nervous one day thinking about going to the Old Bailey, not into court but into, into the office of this man called Lord Hutchinson, who was the principal QC who was defending the three. And, the issue was really quite simple, very interesting. In fact, they were acquitted, but the issue was simply this. Duncan was very interested in defence communications, the communications systems used by army and the other services, and by sheer ingenuity he was able to put together information that he had derived from a huge variety of different sources, brochures at trade exhibitions, defence exhibitions, trade exhibitions of defence communications equipment, the magazine of SIGINT, Signals Intelligence, which was, the people who were doing this sort of stuff. But he put all this stuff together, with a lot of intelligence, and, he's a very smart guy. And he put it all together, in the course of which he was able to actually generate statements, claims, allegations that were actually secrets, but he had done it by simply piecing together bits of the jigsaw, all of which were in the public domain. And that really is an important trial in British history in the sense that that was the issue. It wasn't that they had broken into somebody's safe and stolen something or some secret document. It was the fact that they had put together, largely Duncan, had put together information from these quite disparate sources, some of which we had published. Again upon which I had taken legal advice by our own legal adviser. It was close to the, [laughs] it was close to the bone, but, but it was, it was OK, it was within the definition of, of secrets at that time, under the Official Secrets Act, and it was, it was on that basis that Duncan and the other two were acquitted. But, giving evidence on



that was quite sort of demanding technically, and... So that's one. You asked how I started the day, that was by no means typical, but it was one day in my life at that time.

*Could... This, this seems incredibly interesting. Can you remember, are you able to say any more about the evidence that you were asked to give in this trial?*

I was simply asked to, to comment on articles that Duncan had written in *New Scientist*, and our reasons for publishing, what steps we had taken to check out legally that this was, was publishable, that we were not infringing the Official Secrets Act, and which we did, we had a legal adviser, called Peter Mason, and we consulted counsel as well. So, I can't remember actually now, it's so long ago, it was during the Seventies, and the details, I'm afraid I simply can't remember. But all this stuff that I'm talking about was published in *New Scientist*, although the case against Duncan wasn't based only on *New Scientist*, it was stuff he had written elsewhere. But the most technical stuff was in, in our, in *New Scientist*.

[0:09:41]

*On, though, a more typical day, having got home from the, the office, to what extent would you work in the evening at home?*

[pause] Again, I wouldn't say there was a typical, a typical pattern there, except I would invariably be reading stuff in the evening. I think that was probably the main thing. Didn't have much time during the day to sit, [laughs] sit reading. So, for example, reading the things like, the weekly journals, the *British Medical Journal*, the *Lancet*, which were two of principal interest to me, and of course *Nature* too, and, and other more specialised journals in my own field of microbiology. I used to do quite a lot of that in the evening, and weekends.

*I'm wondering whether this, that was something that attracted criticism from, from your wife, given her, what you've described as lack of interest.*

[laughs] No, she simply wasn't interested at all, no.

*You weren't being encouraged not to do so much reading and...?*

Oh no, no no no. No, no, no, no not at all. In the way that my, I have mentioned earlier, my mother had discouraged me from certain sort of academic things when I was at school, but, if that's what you have in mind, no. No, no discouragement. She simply, she, she simply wasn't interested.

[0:11:01]

*Were you also doing, as I think you must have been, your own writing separate from...?*

Oh yes, yes. Yes. Yes, I was. I mean I was, I was... I had worked previously, as you know, at *World Medicine*, and when I left I had been asked to start writing a regular column, which was called 'Talking Science'. So it was scientific aspects of, of medicine. And I used to... It was a fortnightly magazine, so I used to write that regularly. And other things ad hoc as they... I used to get asked to write for the *Guardian* or whatever, newspapers, from time to time. And of course books, this was the beginning of my interest in writing books. The, [laughs] although the main thing to say there would be that I actually, having got a contract with Secker and Warburg for writing the book that eventually became *What is Science For?*, what actually happened was that as soon as I went to *New Scientist* I thought, I'm going to have to commit myself one hundred per cent to my main job, to being editor of *New Scientist*. So I cancelled the contract, and sent my advance, my money, [laughs] back to Secker and Warburg. Doesn't happen very often. But I really felt, I, it would be quite wrong, for all sorts of reasons, to spend time writing a book, which is quite a serious commitment, while, while running *New Scientist*. So I picked that up again some years later, that was, you know, the first of my, apart from *Journeys in Belief*, which you mentioned, that was my first book. I forget when it did appear, but...

*It was published in the Seventies, so presumably...*

Yes it was. Yes.

*...having worked at New Scientist for a bit, you decided you might have time.*

I decided I could fit it in, yes, I did. But initially, for, I think the first year or so certainly, I didn't do anything of that sort at all. I was also doing some radio, radio interviews as well.

[0:13:02]

*Thank you. Can I ask about a number of things that you may have observed in general while, certainly as editor of New Scientist but possibly before and after, and that's, what you observed of the role of the press in general in arguments made on behalf of British science as a whole? I'm thinking of groups like, say, British Science. And arguments made for particular bits of it concerning funding.*

Mm. [pause] Yes, I, I think the picture was really rather spotty, you know. I think... I mean these issues were ventilated in the press, but it was, it was down to individual science editors, science journalists, on newspapers what they considered to be important, and, and particularly significant in what they could convince their news editor was important. I mean this is a thing that's often forgotten when we discuss relationship between the media and science, and journalists are sometimes criticised, sometimes praised even for what they have written about science. What's often forgotten is that they have to sell, if they're proposing to write a story in tomorrow's newspaper, they have to sell that idea to their news editor, they've got to go to that person and say, 'Look I want to write about this. And this is why, this is why it's important, why I think our readers would be interested.' And so the, the most influential science journalists were those who, you know, who succeeded in doing that, either because they were good at presenting the arguments, or, or that the news editor was receptive, or both. So I think that would, you know, that, looking back, I mean that would make, that made a huge difference. I mean John Maddox on the, on the *Guardian*, was an example of somebody who clearly was very successful, had a sympathetic news desk who, who more or less allowed John to write about anything, including the topics you've just mentioned, because they would support his judgement about what was important. Whereas other, other places, you know, people with deaf ears, cloth ears as we sometimes say. I think you saw that particularly over, I mean I'm jumping forward, but, I think you did see that particularly over the furore over genetically modified food, which I took a very close interest in, and which led to a

sort of national hysteria based on the notion that there was something artificial about genetic modification, and that GM food was, was, well initial claims were that it was unsafe to eat, and then the claims became, it was unsafe to grow because of, of genes flying around in seeds and arriving in some, some plants being expressed and, and causing troubles. So, these allegations were flying around. Basically, I never felt there was anything whatever in any of these allegations. But I mention it now because of the question you ask, and that is that, many journalists, not only science journalists but some general reporters on, on papers like the *Daily Mail*, went along with this hysteria. One or two stood out against it. I mean Robin McKie for example on the *Observer*, Robin was asked to write about this stuff, and he sat down with the news editor and said, 'Look, I do not believe that this is dangerous. I do not believe the allegations that are...' And sat down and explained why. And Nigel Hawkes on the *Times* likewise. So Nigel Hawkes on the *Times*, Robin McKie on the *Observer*, both, I would say did themselves enormous credit, not for what they wrote, [laughs] but for what they didn't write, because they refused to go along with the, the hysteria that was being generated at that time, which pretty well the whole of the rest of the press followed, you know, mindlessly.

[0:17:13]

*What would, what then was your view of the, the sort of, sensitivity to scientific stories, or, of the various news editors who were operating at the time, say, that you were in New Scientist?*

Yes, well, I mean I didn't know any of them personally, but what I, what I heard was feedback from the science journalists, like the people I've just been mentioning. And it clearly varied enormously. Typically, one news editor would say, 'Oh, everybody else is writing about this in this sort of way,' as with GM food. 'It must be right. No smoke without fire. It must right. We've got to go along with it.' And they would, particularly if they had been in post for many many years and had that authority, they would get their way. Whereas others were either more open or they were new, they were new and they were making their own judgements in response to what they heard. And, I mean I, I do think, I was much involved later in courses on science and the media, which we might talk about later, and this was always the element that was a surprise to people, that, you know, you can't simply blame, or indeed praise, a

journalist for what they've written; you have to bear in mind the transaction between them and their news desk, their news editor, who makes the real decisions. I mean, talk about gatekeepers in the media, that's the best example of all of gatekeepers, and there are comparable roles of course in radio and television, people who really decide what it is we're going to write about or broadcast, and what we're not going to cover.

[0:18:57]

*And did you have a view, do you have a view, about the, the sort of, proper, I suppose distance between the scientist and the science journalist, when it comes to writing about matters of funding where parts of science or, or British science as a whole, has a particular interest in telling, so on?*

Yes, of course, yes. And it's something I've seen, I did see growing enormously over the years. I mean, [laughs] it, it sounds like I'm going back to the Middle Ages, but, there was a time when, when certain universities for example barely issued a press release from one week to the other. I remember ringing Oxford University, I can't remember when, it would have been when I was at *World Medicine* in the 1960s, ringing Oxford University, asking to speak to the press officer. There wasn't one. [laughs] There was somebody in the registrar's department who had been given the job of dealing with journalists if they ring up. But basically they, you know, the whole role of science, of press releases and press officers, was, was something that emerged really during the Sixties, Seventies and Eighties, and with it came, going to the point you've asked, with it came a temptation of some universities to use this system for, not just giving information but for promoting their own causes and their own claims on funding, which you mentioned. So I mean that did begin to happen. A good journalist should be able to smell that though and, you know, be, be cautious about it, and be critical of course.

*Did you have, did you have a view though of the extent to which journalists were being sufficiently critical of those sorts of attempts to use them in their...?*

Yes. I mean some, some were very very good indeed at... I mean, it just, it varied. Some journalists, I suppose partly because they're lazy, they lap up whatever they're giving in a press release or in a conversation with a press officer; others are properly

critical about it. And sometimes it can happen that, a journalist doesn't actually realise that they're being used. I remember one case, I'd better not mention names, but, I remember one occasion when the director of what was then called, I'm not sure it still exists, you'd better check it out, the Uranium Institute, a European thing called the Uranium Institute, it was concerned with uranium, enrichment of uranium and so on. And, the director of this Uranium Institute was praising a national newspaper science editor in the UK, and he said, 'Oh yes, he's very very good. He's, he knows his stuff. He's really, really, really good at his job. I've had very good service out of him over the years.' [laughs] And of course that's the comment I remember, because, the person concerned didn't realise that he was in a sense being used, and the director of this institute had discovered that he was able to contact this particular individual and get his stuff into, into the newspaper without, you know, fairly easily. The real relationship between a journalist and a scientist, or indeed a press officer, should clearly be much more critical. It should be, you know, you need to ask questions. And journalists also need, very often, they don't always do it but they should, cross-check, they should, they should ring Dr Bloggs in Lancaster and say, 'Look, I've got some material here; it's being suggested that, there is a new, a new way of, of developing plants that might be beneficial. These are the claims made for it. What do you think, what's your view?' So I, that sort of role I think is very very important. It's something I've always encouraged scientists to do, if they get a phone call or an email now from a journalist with a question like that, they really ought to spend their time and give of their expertise to try and, you know, not, not necessarily denounce the story they're being fed, but simply to, to help the journalist to understand what it's all about and to evaluate the claims and put it in perspective. That's very very important. A scientist in a lab doesn't get any credit for that or any payment or anything, but nonetheless it's very important to do it, to help a journalist, give them perspective.

[0:23:57]

*As, then, scientists' awareness of the potential benefits of the press developed in the Seventies, to what extent did you sometimes feel that you were subject to attempts to use you in the same sort of way, as editor of New Scientist?*

Mm.

*Were there occasions when you felt that, aside from the ones you've already mentioned, which is, the tendency for certain interest groups to sort of bombard you with another article after you had accepted one....*

Yes.

*I wonder whether there were occasions when you felt that a particular standpoint, were trying to use you to sort of, gain publicity, to increase funding, or to...*

Mm, oh yes, oh absolutely, yes, of course, yes. And, I mean on, both on research issues, I think I mentioned last time the story of the, the so-called Penderocyte, a person who insisted he had discovered a new type of red blood cell. [laughs] That was a, a very strong attempt to get stuff in, into the public domain from people who quite often had been rejected by, by one journal after another. So they, they'd expired, they'd exhausted the possibilities of getting their claims into a journal, because, the reviewers had criticised the work, so they would try something soft, like *New Scientist* or indeed a daily newspaper. So, yes, of course of that used to go on, yes. But, yes, it was, I would say, fairly easy to spot actually. [laughs] You just knew there was something going on here that, you know, you didn't want to be part of.

[0:25:40]

*What do you remember in your role as editor of the, and in your, as someone who was just following these sorts of things, the, the response to the Rothschild Report in the early Seventies, so, scientists' response to that? You've got something on this in *What is Science For?*, but I wonder whether you could sort of, give me your memories of that period.*

Oh. Well, I mean, thinking back now, it, it seems to have been magnified into something of enormous national importance, when it, when it really wasn't. I mean it was part of a process I suppose of rethinking research priorities and rethinking the balance between what I think Rothschild called mission-oriented research and curiosity-oriented research. There were various research councils around the time

who were coming up with new, well, new, little more than new slogans. I remember what was then called the Science Research Council announced one day it was, this new policy of 'selectivity and concentration' which, you know, is, is self-explanatory. I think now, I mean yes, Rothschild did look at applied research and development. I think it was misunderstood by some scientists who forgot that it was, it was really directed solely at applied research and development; they thought it was directed at science generally. I think maybe some of the press coverage encouraged them to believe that. They saw it as a threat to themselves, which it wasn't. But, as for the outcome and the, the setting-up of the so-called customer-contractor relationship, I think was probably a good thing, it encouraged scientists working in the lab on, whatever it might be, urea or, and liver enzymes, to think, you know, about the possible applications more than they thought before perhaps. The creation of chief scientists in the various ministries, I think was probably a good thing, it crystallised scientific thinking around one individual. Although, you might say, well, what can one individual know about everything in their field? Well they can't, but they ought to be able to, they ought to have a network of other people to talk to. So I think probably that was probably worthwhile. But I, really, I do feel, looking back, that it, it assumed an importance far greater than it really was.

*At the time it assumed this...?*

Yes, it was blown into a huge, huge... It was, it was done under the Thatcher Government of course, and, as, as Margaret Thatcher was shaking up, not just science but all the professions, law and, everything insight she was, quite rightly, saying that professions, like other things in life, become hidebound over the years, doing things in the same way, we need, she used the word challenge a lot, we need to challenge people more. And this... I think the pity about Rothschild, and the thinking that went with it, was that, while many scientists did respond to being challenged, about what they were doing and what it was for, I think there were, there were some scientists who were not good at presenting themselves, were not robust and forthright and confident. They were working away in their, in their lab, doing something quite important, but they weren't, they didn't sell themselves very strongly, and maybe didn't have colleagues or heads of department who would push on their behalf. So I think there were some casualties. I mean I can think, I'm not going to name names,



but I think, there were some departments, this is more to do with what the Thatcher Government did in terms of, of attacking government – university spending, than it is to do simply with Rothschild, but I think, I think there were some casualties. There were some sleepy valleys, that were sleepy valleys that needed shaking up, where people were ticking over, not doing worthwhile work at all, never being challenged. And I think, you know, they did need to be shaken up. But I think there were others, and I could name names, where people who were doing good work, but they were almost your archetypal caricature of a scientist who is a bit unworldly and, doesn't want to think about where the money's coming from. I think there were people like that who did lose out. And I could, I know of individuals who took early retirement because they were frozen out by the, by the system at that time.

*Is it, is it possible to identify them?*

No. [laughs]

*What about the, were there particular projects, whole projects or departments that you think suffered, that you could identify, without identifying the individual? So that we can get, so that we can be clear about the type of science that might be affected.*

Yes. [pause] It's difficult. I mean I, I mean, the big example really, but I can't give you sort of, chapter and verse on the actual science, but I remember very, very clearly John Ashworth, who later became chief science adviser to the Government, John Ashworth, who was a microbiologist, and who I knew quite well, he became vice-chancellor of Aston University, I can't remember the date, you would need to check it out, but, at a time when Aston was, was really on the verge of going bankrupt, their funding had dried up, a variety of sources. And John simply had to sit down, and I can't give you chapter and verse but I know he sat down with heads of departments, looked at what they were doing, where the money was coming from, what it was being spent on, and took some quite robust decisions about, a path for the future. I know, that was the general scenario. I'm afraid I can't now remember the detail. Although he undoubtedly could, I mean John Ashworth is still around, you could ask him, he would tell you all about it. I'm sure he would be happy to.

[0:32:02]

*And what was your view of a sort of move towards the privatisation of, especially former government research establishments? I wonder whether you followed that and had a view on that. This is, this is somewhat later, but, more obviously later than Rothschild, but, not much.*

Yes.

*Also under Thatcher.*

I, I think I would just make the same point, that if you, you know, if you do determine your research priorities purely on commercial criteria, letting practical use be your sole criteria, then you are in danger of neglecting speculative research. You know, when you think of, when you think of the revolution in molecular genetics and in, applied molecular genetics in genetic modification, as it's now called, it used to be called genetic engineering, but this is ramified through the whole of, of biology, human, animal, human, plant biology, and has, has altered the way work is carried out, increased possibilities for practical applications, but much of that was based really on, on curiosity-oriented research, funded by people like the Medical Research Council in Britain, not with any hope of developing a cure for any disease, this year or next, but simply based on a, a confidence that it was worth doing: we need to know more about how cells behave, and the biochemistry of cells, and the genetics of cells, and this, this work will, will become, will have applications. I think, I think, you know, we, we've moved way beyond that now. But, I think, I think the commercial question you raise, I think it, it did bring in some distortion into that, into that situation.

*The one I have in mind is the Royal Aircraft Establishment.*

Mm. yes.

*The sort of breaking up of it, and then the privatisation. I don't know whether it's something that you followed and had a view on at the time.*

No, not really. I mean I'm aware of it, as you are, but, no, it's something I'd have any informed view about I'm afraid. Sorry.

[0:34:33]

*Thank you, Another thing that I was interested in your views of is the way that, that sort of government policy concerning science is developed. In your roles as editor and journalist and writer, what did you see of the way in which science policy seemed to be developed in Government? In other words, who was influencing it? How could, how could scientists lobby for their own interests? Which particular senior scientists seemed to have the ear of Government, that sort of thing.*

Oh. [laughs] Difficult question. I mean I think overall I'd have to say that, that governments, that political leaders have, have sort of reached out for science as something to talk about and, in a, in a, not a very logical way. I mean I go back to, I go back to Harold Wilson and, back in the, oh dear me, when was it? Early Sixties, at the annual Labour Party conference, talking about, I remember the phrase, the future of Britain being 'waged in the white heat of the scientific revolution.' What he was really doing at that point was trying to divert attention away from nuclear policy and the question of the bomb, and whether we should be unilateral or not. And he, he got hold of science as being something, [laughs] let's talk about this instead. I'm being cynical, but I think there's an element of truth in what I'm saying. And I think it, it continues. I mean if you think about scientists who – or, sorry, politicians, who, who have really shown any great, real, credible belief in, in science, they're few and far between. And I think it's, science has been limping along, and from time to time a politician would, would grasp at it and try and make some public capital out of it. But I'm really quite cynical actually about, about the whole thing really.

*What's your view of, for example, Mrs Thatcher's claim to be a scientist and to support science?*

Oh she, I mean she had studied chemistry at Oxford, certainly, but, I, I've touched on this already, I mean I, I really couldn't look back and say, yes, you know, she did, she put science on the public agenda in the way it wasn't previously, and, gave new

direction, because, I couldn't say that at all I'm afraid. [pause] No, I'm sorry, I...  
[laughs]

*When you say that it was very rare to find a politician with a really credible interest in science, were there any, can you think of any? I mean can you think of any politicians who...*

Well, William... The only name I can come up with actually, but it's, it's there instantly, because William Waldegrave I think was somebody in Government who clearly believed in science, and clearly, and supported, I mean he, he was very active in supporting things like the Edinburgh Science Festival which I was involved in, I was on the board at one time, and I talked to him then and he, he clearly was sincerely committed to the importance of science, in almost an intellectual way, you know, he felt that science was important as part of our culture, not just for its practical applications, but as part of our, our cultural landscape, and something that everybody ought to be familiar with, in terms of basic, the basic ideas of science. Now, I think, probably, he's the only, he's the only individual that I can thoroughly endorse in that sort of way. [pause] If another, if anybody else comes to mind while we're talking, I'll let you know, but I, no, William Waldegrave was, was really quite special in that sense, and was recognised as such by, by the scientific community, I would say.

[0:39:05]

*I take it from what you've said then that you, you don't feel that the white heat and Min Tech type enthusiasm was exerting any real effect on science by the time, say, in the late Sixties when you're at New Scientist, that this, this particular way of being enthusiastic about science from Government, from what you've said I, I sense that you don't think it was actually having an effect, that it was more a kind of, a political strategy or just some slogans or a... I mean, was it in the background, did it change anything, did it have any effect?*

[pause] Ooh. I... If you're looking for sort of, sweeping changes that one can identify as setting new direction for a scientific enterprise, I would have to say no. Yes, there were new structures, new ministries were created, new ways of research funding and so on, but I, I don't; I see it all as being a bit piecemeal really, rather than

representing any major, you know, shift, you know, comparable with a shift like Britain's decision to seek entry to the Common Market or Britain's attitude towards what's been happening, is still happening, in the Middle East, or, you know, issues of that sort on the world stage. I, I don't see anything to do with science that I could remotely compare with, with those sorts of major upheavals and changes in, in other, other sectors if you like. No, I'm sorry, I... [laughs]

[0:40:59]

*And finally on this sort of thing, before we get onto what you do after New Scientist, what memories do you have of sort of, debates about manpower and brain drain and... There's one argument that scientists could be argued to be constantly crying wolf about manpower and saying, we need more money and...*

Yes

*But I wondered, a) what your view of these kind of arguments are, and b) what your experience of them was, in the Sixties and Seventies.*

[pause] Again, I, I mean I, of course there were initiatives, you know, we need to train more engineers, and so on and so on, things like this were going on, but, I, I really don't think that any of that changed the actual landscape of science at all, really. I, I'm sorry, I can't, you know, I, I just, I just don't see... [pause] I'll continue to think about it, but I don't actually see... [pause] I mean the same thing would apply to medicine of course, that, you know, from time to time we've had, oh dear oh dear, we're short of doctors, we need to train more. I'm astonished that, [laughs] we're still, in 2015, we're still having those sorts of controversies and those sort of problems continuing. One would have thought it would have sorted out, that we've got a government that, we've had governments which have had access to a Civil Service with experts and demography and all the rest of it who measure and monitor social trends, and, in medicine it's to do with the ageing population, and yet we, we seem constantly to be, to be shocked in discovering that, you know, we have more old people, more, older people are living longer, therefore we perhaps ought to consider putting more money into, into diseases and disabilities that do affect older people. But I'm afraid that in the real world, we're still there, we're still having these

problems that were not anticipated and dealt with. I mean another person, you asking me just now about, about individuals in Government, the other one in this context worth mentioning was David Owen. David Owen, when he was Minister of Health, before he became, before the launch of the SDP, when he was Labour Minister of Health. And he decided that the time had come, and this answers a couple of other, broader, questions you've raised, he decided it would be a very good thing to set up a study which would look at how much the country is spending on medical research, both physical medicine and, and psychiatric medicine, mental illness, and all these, look at breaking down into particular conditions, bipolar disorder, you name it, we'll look at the amount of money that's being spent in each of these sectors. And we then need to have a discussion about whether money should be allocated in relation to the number of people suffering from that condition, the severity of that condition, the disability associated with that condition, the age profile of patients with that condition. So this was the beginning of an attempt that David Owen I thought, I give him enormous credit for thinking about this and having a working party to look at it. Unfortunately [laughs], unfortunately he went out of office before it really got going, and it was just, it was just disbanded and terminated and nothing more happened. So this idea, and I'm, because I'm, I think I'm a bit of a rationalist, I thought this was a very good idea, to look at this in a rational way, and to look at what we're spending on different aspects of health in relation to the problems that that disease or disability causes. And then of course, to decide, you know, should we allocate money in that rational way? Are there other criteria? I mean he was conscious, when he set up this, that some areas of medicine do better than others simply because some are better organised in lobbying. There are charities for certain diseases which are very vociferous and very effective in ventilating their problems and the need for more money. He wasn't arguing against that, he was simply saying, yes but there will be other areas that are not very fashionable, particularly geriatric medicine, you know, how much work is going on in incontinence? Which is a huge problem in elderly people. And he, he gave that as an example of a condition that was not a, [laughs] not a glamorous condition in terms of exciting young doctors to go and study incontinence. But... So there, there we are, an example of something like that that was being neglected because there was no strong lobby, whereas others, like cancer research, of course, has always done very well, quite rightly, not, I'm not criticising that, but in terms of, of funding, raising money. So that whole complex of issues I

think was one that David Owen highlighted, and it really, frankly, not only in his time but, nobody's looked at that since from that perspective, and I, I think they should, I think, it's very important to do that.

[0:46:44]

*Thank you. Why then in the, this would have been the late Seventies, did you decide to leave New Scientist?*

[pause] Why did I decide? [laughs] Well, I think, as in anybody confronted with that decision, there were both positive and negative aspects of this, but, on the positive side, I really was feeling that I was... This is really... I'm sorry, this is the negative side as well, because, I was spending so much of my time not writing, not being an editor; positively, I actually did want, I wanted to write more books. I wanted to take up invitations to write here and there, columns and, and join various things, which I simply didn't have the time to do. So, I was looking to expand and develop my, my work in that sort of way. But the negative part is simply that, over the decade when I was editor we had gone from a circulation of under 50,000 to one that was eighty-something, 87,000 I think, heading towards 90,000. And I don't take, I don't take all the credit for that. I might take a small amount of credit. But basically I had a very good team of people, and we, that's what we had achieved, in terms of the commercial success of the magazine. And of course you have to remember that, if a magazine or newspaper does begin to put on circulation, it also brings additional advertisement revenue, because the advertising department can tell recruitment people or can tell companies, we are selling to, 50,000, or we're selling to 80,000 readers. So, you can, your page rates for advertising can be raised accordingly. All that had been happening. Meanwhile, the main impact on me was that, I was having to spend more time, not less, in, in having business meetings, and arguments and discussions about budgets. It sounds paradoxical, but, part of the problem here was that we were, we were part of this disparate magazine empire called IPC with eighty-something magazines, all different types of magazines. And for example, the type of thing that would happen would be that, during the period I was editor, during the Seventies, the two great flagships of IPC had been two women's magazines called *Woman* and *Woman's Own*. They had been hugely successful in their day. But they were declining, circulation was declining, and this was because there were a lot of

magazines, like *Marie Claire* for example, women's magazines coming in, and, actually recognising the world had changed, looking for a younger, a younger readership, looking for different issues to cover and cover them in a different way. And they were beginning to chip away at the circulation of *Woman* and *Woman's Own*, which began to decline quite drastically. And it was largely because of these, mostly imported, magazines, or, Kath can remember the other, there were some UK ones as well, but they were all appealing more to, to readers, to women, and, younger, younger women readers. Now, why am I telling you about this? I'm telling you about it because, this became quite a serious problem, became so serious that there was one year when *Woman* and *Woman's Own* income had been declining dramatically, and in the middle of the year, I mean in the middle of the financial year, all the other magazines, including *New Scientist*, found their business plans being rewritten. They wanted more money, the centre, the company wanted more money from other magazines to compensate for the decline in revenue from *Woman* and *Woman's Own*. That's, that's a clear example, there were others, but that's the most clear example I can give you. We had been increasing our profit contribution to the centre, we had been doing it, we'd been growing, you know, very very well. This was towards the end of the 1970s, maybe '77/78. And that really was, I began to think, I can do without this, you know. [laughs] Particularly because I was wanting to do, you know, do more writing of my own. So that really is the, that really is the situation in a nutshell for me at that time. Certainly a lot of people used to say to me, 'Why on earth, why are you leaving a job like that?' you know, well paid comparatively well paid. Even, well, I won't... this is subsidiary issues though which, this was, this was actually also towards the end of the Labour Government's income freeze when they were trying to keep a lid on, on salaries, a policy that an economist was telling me was crazy, but they thought that was a good... So the, the Government was, was also keeping a lid on, on incomes. And, so that... Normally, because we were doing so well, I would have expected my own salary to rise more, more steeply than it did, it was, it was rising by about five per cent or something, but, normally you would expect, in a, in the media world, if you are making more money, then the people running the business should be rewarded accordingly. That wasn't happening. So that was a subsidiary issue, which I blame Mr Callaghan for I think. [laughs] But the main was, really was to do with IPC itself, and what I told you about *Woman* and *Woman's Own*. And other things like that, that meant we were, we were, you know,



having to spend more time, I was having to spend more time discussing money and management issues. And, I, I just got, I just got very fed up with that, and decided, because I had other, other things that were coming along, people were wanting me to do this, that and the other, which we might maybe talk about after coffee.

[End of Track 10]

[Track 11]

*Could you then tell the story of your life after New Scientist, what you then go on to do?*

Mhm. Right. Well, as I said, I, I had been tempted to do lots of other things, and, not being able to because of time really. [pause] I mean I did, I started writing columns for, well *British Medical Journal* for example, started a regular column in there, and things of that sort. But, also... Well, I need say initially, there was a rather interesting episode with a magazine called *Omni*. I don't know whether you would recall, but, no you wouldn't. In the 1980s there was a, a succession of new popular glossy monthly science magazines launched, all of them in the States, the first of which was called *Omni*, and surprisingly perhaps it came from the, the publisher of *Penthouse* magazine, called Bob Guccione, who, he and his partner called Kathy Keeton decided they were interested in science. Well they were interested in science, particularly science fiction. So they launched a magazine, which they called *Omni*, which included both popular science articles and science fiction stories. And they wanted a UK editor. So, fortuitously, I mean this is a, the first thing that happened to me, having resigned *New Scientist*, within a matter of weeks I got this approach from... No, sorry, it happened before. They came to see me just before I left. Well anyway, they wanted a European editor to look after contributions, not only the UK but from Europe, and to write for them regularly. And to cut a long story short, I said, yes, I'll, yes, I'd be happy to do that. I saw it, I never saw it as being my entire career, but I saw it as being, you know, a part of. I didn't... Actually, another point worth making. After *New Scientist*, I always felt, I didn't actually want to have a single job any more; I wanted to have a portfolio of different sorts of things. So, *Omni* became one of those. And quite an important one in a way, because, it was a successful magazine. It was, coincidental in time, there were a number of other popular science magazines launched. Mentioned *Omni*. The next one was a magazine launched by the AAAS, American Association for the Advancement of Science. It would change its name every year, it was called *Science 80* when, the first issue was called. And it went through to, *81*, *82*, and, finished up in 1986, the last issue, the last year of publication was '86. There was also one called *Science Digest*, which had been around for a very long time, in a small *Reader's Digest* format, and that expanded to A4. And then the

other one was called *Discover*. So there were actually four popular science, glossy monthly magazines, all launched in the States but selling in the UK and round the world. And it was, you know, it was, it was quite remarkable that these four magazines all appeared at the same time.

[0:03:35]

I may say that, I've seen, I've seen a serious academic analysis of what happened to these magazines, which, broadly speaking, most of them disappeared, which said it was, that proved that there was a shortage of readers. Not so at all, it wasn't to do with shortage of readers; it was to do with lack of advertising revenue. You know, you have to have, all magazines and newspapers rest on advertising revenue as well as sales, and, there just wasn't enough ad revenue to go around. So anyway, *Omni* was one of those that bit the dust and disappeared, and... I then found it quite difficult to, to sort of, relate things in time, but you can find all of the detail in *Who's Who*.

[0:04:27]

I mean, one of the things that came along was a, a journal I was asked to edit, and Kath did all the administration. She actually ran it and I, I ran the, the reviewing side, with a panel of referees. It was called *Medical Science Research*, published originally by Elsevier, and then it, it... It changed publisher two or three times actually while we were doing it. We did this for ten years. And it was a, a magazine of original research papers, across the whole spectrum of, of medical science, clinical medicine. So that, that became an important component. More books. I was beginning to write more books as well, that's another part. And then the, the other part is that, out of the blue I got asked if I would organise a, a communication skills course for Wellcome Trust, which wanted to do something to help train Wellcome Trust funded PhD students in, in communication. That is, scholarly communication, you know, peer group communication, meaning giving papers at meetings, but also writing papers for journals. But also public communication. And this was very much related to something you've just asked me about, PUS, public understanding of science. I can't remember the year of the... Do you know the year of Bodmer?

'85.

'85. Yes, that figures. Yes. So, again... So, the report under Walter Bodmer for the Royal Society came out, and, argued that there ought to be much more going on to

help 'the public' to understand science, scientific developments. And the Wellcome Trust approach about us doing courses was, was really inspired by that, organisations like Wellcome decided they really must do something. Which formerly had not been done at all, you know, whether there or in universities or anywhere. You know, young scientists simply picked up habits, good or bad, about communication, by hearing other people, maybe their supervisor. You know, if their supervisor was a good model, that was fine; if not, it wasn't fine. So, it was, that was what happened up until this time when Wellcome Trust initially decided to do something about it.

[0:07:10]

And that was when I started doing courses as a tutor with two people, one, Peter Evans, who was a broadcaster with BBC, he, he presented *Science Now*. There were two programmes running in parallel, *Science Now* and *Medicine Now*, ran during the Eighties and Nineties, and into the Noughties I think. And they, they were magazine programmes reporting on science, scientific advances. Peter presented *Science Now*. So he was my, my main, my, one of my partners in this Wellcome Trust exercise. The other one was a man called Stephen White who was the public affairs director of the British Psychological Society, who sadly is no longer, no longer with us. But Peter and I continued for, for many many years, and, doing the courses for Wellcome Trust led in turn to us being asked to run similar courses for what was then the Imperial Cancer Research Fund, ICRF, which is now Cancer Research UK. But also for various other bodies, University of Oxford Zoology Department for example, there was somebody there who was very keen on doing this sort of thing for their undergraduates – oh, no, not undergraduates, MSc students, it was a communication course for MSc students in cell biology. So we started doing that. University of St Andrews, again approached us. I think these people sort of, heard what we were doing, heard on the grapevine, and asked us. So we started doing courses up there. I'm saying each of these in the plural because in each case there were quite a number of courses over the space of a year. So it became, you know, it became quite a major activity for me, at the same time as the works that Kath and I started doing and continued to do for many years, which was providing media liaison for scientific meetings. I may have mentioned in the previous conversation the International Congress of Genetics in Birmingham. That was one major event when it was decided not only to have a scientific meeting, but to, also to have a public dimension to it, which was a booklet that I... Did I give you a copy of a booklet? Yes. A public

information booklet on genetics and its applications. There was also talks every evening during the, in the Birmingham Convention Centre, public talks on, mostly human genetics but, other aspects too. So here was, for the first time really, a big, a scientific meeting which had this other, other dimension to it. And Kath and I were both quite heavily involved in running those public, the public parts of the meeting. But then, you know, other things came along. A big one would have been the regular European Biotechnology Congresses. These were held by the European Federation of Biotechnology around Europe. And again, they were, they were primarily scientific meetings, people presented papers, but, that was not all, because again, there were other elements grafted on, a press office for example. And, the sort of thing that used to happen there would be that I would plough through the conference programme with an abstract this thick, and I would identify topics that I thought might be of interest to journalists and therefore to the, to the public, and write press releases on those papers. And that, that became something, I don't know how many we did, but many years we, we did that sort of stuff, for congresses that were held all over, you know, Copenhagen, Amsterdam, all over the place, with, with this public element, public element and press element grafted on, to what would otherwise simply have been a, a scientific, a scientific paper reading meeting.

[0:11:40]

*How new was that graft onto the, the conference of the press office? Were you doing this for the first time for this congress, the biotechnology congress?*

For the biotech. That was... Yes, we were... There had been biotech congresses before, but, and I can't remember the date. I can dig it out. But, yes, it was, it was new, the EFB, European Federation of Biotechnology, had decided that they should do something. I think in their case it was, partly a sort of defensive reaction to, certainly in the UK it was, these sort of activities were, really partly triggered by the Bodmer Report. But, I think in the European example, there was a lot of concern, particularly in Germany where Die Grünen, the Green Party, were very active in pretty well totally opposing any, any developments that were taking place in, in genetics and human genetics, in plant breeding or whatever it might be, they were just, inherently opposed to. And that was becoming a problem for German scientists, West German I should say then, before unification. So that, that was really part of the

motive, I would say, why EFB set up these meetings, these, the public part of these meetings. In addition to which they created a, what they called a task group, a task group on public understanding of biotechnology, and that was a, a group that consisted of, well the entire membership of that, at that time of the European Union, which I think was fifteen countries at that time, and I was one of those. There were some, at least one person from each country, each of the EU countries, on this committee, and we would have, we would meet, but, meetings in order to plan our activities, which were, it was linked with the congresses but other things as well, dedicated meetings on, you know, public issues which we would hold in a particular place in the local language, usually, not always. But public meetings that were designed purely as public events. And also, what were called briefing papers. We started creating a series of briefing papers, so you might get a briefing paper on, I don't know, gender selection or whatever it might be, or GM food, and this would be generated by the fifteen people round the, round the... It had the difficulty of any document written by a committee obviously, but nonetheless, it was important to get different shades of opinion, different voices, including sometimes, you know, quite, some people who were rather critical of certain developments would have their say in the... It wasn't a selling document in the way I was mentioning earlier, of those universities who saw the press as simply an aspect of PR. It wasn't that. Because it did take into account people who were critical, or at least cautious, including social scientists, of certain developments in science. And that was, I mean that was really quite an important part of what we do, we took a long time to develop these documents, which would be done in a number of different languages and circulated through various societies, whichever was most relevant, a scientific society in a particular country. I think in the UK it was the Society for Chemical Industry that took on the role of distributing to libraries and, wherever, you know, whatever they thought would be the best channels of communication of getting these things out to the public.

[0:15:35]

*Before we look in more detail at each of these activities, could you say something about your relationship with Kath? Because a lot of the time that you've been talking about these things you've been, you've been saying we, meaning you and Kath in some sense.*

Yes.

*So, just to give context for this part of your life, could you outline, as briefly or as fully as you want to, the sort of, origin and development of your relationship with Kath, both personal and professional?*

Yes. Yes.

*Because they, they seem coincident.*

Well, we started living together, what, about, twenty, just over twenty years ago, but we, we'd had a close relationship for many years before that. I, I don't know whether I can say much about it. It grew and grew, you know, and... Twenty... I should know. Twenty-something years we've been, we've lived together. And, and during the whole of that time we have indeed been doing these, doing these things, travelling and, with these congresses and other events, not only in the UK but around Europe. She also ran MSR, Medical Science Research.

[0:16:48]

And then, a third one, a third part of this would be, we had a link with the Institute for Scientific Information, ISI. I mean, I can give you dates of these things, but, they're all in *Who's Who* actually, but they overlap. And, we were both involved in this. ISI is the Institute for Scientific Information, which long ago launched the Science Citation Index, which is, well, originally conceived purely as an information retrieval tool, that's to say, if you publish a paper and you want to know who, who is citing that paper, you could go to the SCI to check it out, see who's, who's been quoting you or citing you. It's now online of course, but it wasn't then. And, so, ISI had launched this, this thing called the Science Citation Index. And the, the president of ISI, who actually was the founder, a man called Eugene Garfield, who in many ways was the founder of citation analysis, he asked me if I would get involved with them in order to develop these wider activities, public activities. The, part of the story is to do with citation analysis, however defined, but the original, the original role of the Science Citation Index as an information retrieval tool became augmented by another use of it, which was to actually look at the level, numbers of citations, and compare them, that

is, to compare Scientist A with Scientist B, you know, how many, how many papers, how many authors on average quoted, cited your paper compared with somebody else. It can be argued that if you're being more heavily cited, your work is better or more useful to other scientists. But also, comparison, and this was something that was growing enormously, it was really catalysed by ISI, the ability to compare different research institutes, say, universities in the UK, you can look at their citation ratings and compare them. And you might conclude, rightly or wrongly, that one that's heavily cited, particularly cited in high impact factor journals, is doing better work, more useful work than somebody lower down the peck order. Even countries have been compared, different countries, you know, their citation levels. All of that was growing. And that's something I, I helped them with, in addition to the, the purely public role. Something I haven't mentioned as yet that I've been involved in, over the whole of this period really, is the body that was originally called the British Association for the Advancement of Science, often abbreviated to British Association. It's now called the British Science Association, which has always held annual meetings, way back into the nineteenth century, which were essentially scientists talking on a public platform about their research. And these meetings typically, certainly originally were attended largely by scientists, but gradually more, you know, interested people. In fact going back to the beginning of our conversation, it was at a BA meeting in Oxford that Thomas Henry Huxley debated with Soapy Sam Wilberforce, the Bishop of Oxford, about evolution. So these, that's an example of something that was of wider public interest, and that began to happen as well. And certainly in the time that I got involved with the BA, I was on their General Committee and on their Council for some years, back into the Seventies when I was at *New Scientist*, and we used to go to the annual meetings, and we used to write it up, and... In fact in those days, all, all national newspapers, all, all the media, all the science correspondents from print media and broadcasting, would go to the meeting, the BA meeting. Newspapers typically would have, there would be a whole page, you know, at least a whole page, in every newspaper, for the week of the meeting. Massive coverage. But they were looking to expand, and do more of this sort of thing, and they were looking for sponsors, and I suggested ISI. And so they started sponsoring an annual meeting within the meeting on, on the sort of stuff I mentioned really on citation analysis, but presented in a way that might appeal to a wider audience, and particularly appealing to scientists in one field who, you know, might



be interested in things and the implications of these wider science policy issues for other sectors. So that became quite important too, and again Kath and I used to, used to run those meetings for them, within, within the, within the BA meeting itself.

[0:22:09]

*Did you have any trepidation about working with the ISI, given your comments on the sort of negative effects of this kind of analysis, in, for example, What is Science For?*

Mm. I... Yes, I, I can't remember what I said in *What is Science For?*. I, think, I might have been more sceptical in there than I, than I would be now, because, during the time I was involved with ISI, well, two things. One was that I became less sceptical, I became, I began to see the use of this, this sort of, this sort of data, but also became aware that there was a lot of misunderstanding out there. A lot of the scientists who were deeply hostile to citation analysis actually didn't, they didn't really seem to know what it was. I remember one meeting at which quite a distinguished scientist got up and started, it was one of the BA meetings, started banging on about it. And he seemed to think that what was being counted was numbers of publications, you know, how many publications different scientists... And it wasn't; he had missed out the whole point of citation. [laughs] So there was a lot of misunderstanding, a lot of hostility towards this. And, I mean, quite rightly in some ways, because it, it stated boldly, you know, comparing citations as a method of comparing quality, it does sound a bit naïve or a bit, simple, or a bit, you know... Nobody has ever suggested, least of all Eugene Garfield who set the whole thing up, that this is the whole, the sole criterion you could use in evaluating science. Nobody has ever argued that. And Eugene Garfield used to write regularly warning people about this, and saying, yes, take it into account, it is important, it means something, but don't look upon this as being an index of the, the sole index of, of quality of science. And that's something I became more, more and more aware of over the years. And, and I saw curious things happening, like for example, the, [laughs] David Phillips, Sir David Phillips, who was chairman at one time of the ABRC. [pause] It was the board of the, it was the, the umbrella organisation for the Research Councils. ABRC. What would they stand for? [pause] Anyway. Just, let's just say Sir David Phillips, who was a distinguished molecular biologist. You don't need to mention ABRC. He was somebody that I, I was, I talked to about this, and he was really,

really hostile to this whole idea. And then changed his mind overnight, he really did. Sadly he's no longer with us, so we can't ask him, but, I assure you that overnight he began to think, actually, there is something in this, it does mean something. The paper's never cited anywhere. [laughs] Clearly wasn't of any use to anybody. Whereas a heavily cited paper is clearly being used by other scientists. It might be for quite, almost trivial reasons, like, the authors have developed a method, an experimental method, and that gets cited. But again it means something; in many cases it's more than that, it's an idea or a, a hypothesis, or part of the evidence for supporting a hypothesis. It's that sort of thing. But even if it's just a, even if it's just a laboratory method, it still means it's being useful. So David Phillips is one distinguished scientist who I, I saw changing his mind very very, within a matter of months, and seeing for the first time the value of this, this sort of stuff.

[0:26:14]

Now, there's another link here which is that, Gene Garfield has also, long dreamt of having a, some sort of regular newspaper of science, and indeed he did launch one, it was called *The Scientist*. It was a tabloid newspaper sized, newspaper for the scientific community. And that's something again that Kath and I got involved in, I used to write for them and commission, we would commission articles from science journalists around Europe to go into *The Scientist*. You'd have to look up *Who's Who* to get the dates again, I can't, I haven't got them in my head. [pause] So this is all what I meant when I said earlier about a portfolio, not, not leaving *New Scientist* and having one, one day job, but having a mix. And of course these things would feed into each other from time to time, you know, a bit of a cat's cradle really of links between these different activities.

[0:27:14]

*Where were you living when you, when at the end of the Seventies you embarked on this new career based on a portfolio of jobs, some of which presumably you were doing literally at home, working from home?*

Yes, that's right, I was living in Chelmsford in Essex. Yes. [pause] Yes.

[0:27:40]

*Could you describe the, the courses in communication skills that you developed initially for the Wellcome Trust?*

Mm. Yes, well, there were two elements to this, one was professional communication, peer group communication, that is, writing papers and giving talks at meetings, and the other part was public, public communication. And, there would be two-day courses, Peter and I would, you know, run different sessions. We would, we would do some role, role-playing really. We would do, for example, we'd start off with a, with a simulated press conference, one of us would play the role of a scientist, and without giving the people, without giving the, the members of the course, the students, without giving them any clues at all, we would just simply say, OK, you're at one of these things called a press conference, which is, things that happen regularly where you've got an expert on the platform, and you're journalists, and, you've got ten minutes of this person's time to ask whatever questions you want to ask about their, about their, their research. We give them one, one clue, one opener if you like, a peg, which was, which was a quote from the scientist saying, he was supposed to be a German scientist, and he, he had said and been reported as saying that the British people are a nation of animal-loving hypocrites. And that's all you've got to go on. And, it turned out to be a, a story about animal research, doing, you know, working with animals in the lab. But that's all, all the people in the audience were given. And then, either Peter or I, whoever was playing the scientist, would answer their questions. And they'd have ten minutes, and then, you'd given them half an hour to write it up. And then, we'd come back and discuss what happened and what went wrong, how they felt about it, and get them to read out some of their, their stories they'd written. I could talk all day about this, but the, the main thing, by far the main thing that came out of this was, that when they're writing their stuff, they suddenly realise, various things they hadn't asked, things they didn't know that were actually quite important. Like, even, 'Where do you come from?' 'Where do you,' you know, 'Where do you do your research?' You know, it sounds so simplistic, but, you know, all, all they were told was, he's German. Well you, you know, you couldn't ever have a story saying, 'A German scientist said...' It would say, you know, 'Biochemist from Munich,' or whatever. And so, that, that's the, you know, very very simple end, but it happened every, every single time. And of course, constantly we'd say, 'Now turn it around. If you're, if you're on that platform, you have to give people, thing, you've

got to make sure they've got basic elements right, and you've got to say things that are interesting, that they'd find, you know, you're linking with them, you're building a bridge to them and their interests, and getting them to reflect on what you are saying. And write it up for your audience, for your particular audience. You know, you might be writing for the, the *Times* or the *Daily Mail*; it'll be different.' So that was the point of that, that was our opening session.

[0:31:42]

The next session would be looking at the articles. We had already, before the course, some weeks before the course, we would have asked them to write a piece, to write an article for a mid-market newspaper, on your research, yes, base it on your own research, and write it up for the... And then we'd have a, we'd go into groups for that, two or three groups, depending on the number of tutors, and, and sit around the table, going through their... They'd each have been sent everybody else's articles. So they'd come prepared to talk about what they've read. And of course, what came out there was, people were far, far, far smarter at spotting the deficiencies of other people's writing than their own, you know. But again, they learnt from that. Learn about language, about, you know, words that you, you could not expect to use for a general newspaper audience, it was simply too technical, or too specialised. But also, the importance of opening a piece in a lively way, you know. Never start an article by saying, 'There is currently a good deal of interest in,' blah blah blah. [laughs] It's just boring. You have to start with something interesting, and, entice the reader to read on. So those are the sorts of lessons that came out in that, in that session. We had another, we would always have another session which would take half a day really, one half day out of the two days, which was, was giving, giving a talk, giving a public talk. And, again, control of language, thinking about what you can reasonably expect an audience to know about or not to know about. Some remarkable things came out of that actually. Quite often we were grateful to other members of the course for pointing out the deficiencies of somebody else's presentation. There was one occasion when this young woman got up and she said, 'I'm going talk about nerve, nerve transmission.' And, and she put a, it was, I think it was pre-PowerPoint, it was back to the days of OHP, and, she put up all these sequence of images on the screen and talked about it, and she did it, she, she did very very well. She was explaining it very clearly. But when she sat down, I said, I said, 'What you've done is actually very good, but, where is all this happening?' [pause] She said, 'Well it's

obvious.' I said, 'No it's not. You haven't told us.' 'Oh yes I have.' It's interesting stuff, the sequence, the metabolic pathway if you like, but where? 'Well,' she said, 'it's inside the cell.' 'Which cell?' [pause] 'Oh. Well...' I said, 'You haven't told us.' And it went, I just let her, sort of, let silence reign for a while. And then, she said, 'Well it's in the brain of course.' I said, 'You haven't told us that. You didn't mention brain.' 'Oh yes I did.' And some other girl, 'No you didn't actually.' I was really grateful, because this, one of her peers had... So this, this young woman had been so engrossed and so, you know, focused on, on what she had done, she had forgotten to tell us a simple, elementary thing, you know? [pause] And that, that, you know, that used to happen quite often, and I was really grateful when other members of the course would intercede and... Because you see this at meetings when people are not thinking, they're not thinking about the audience, this audience today, now. I went to a meeting once, and, I'm going on a, off at a tangent, but it's not really a tangent because it's about communication. I went to a meeting in which this man... It's an international meeting, it was, it was actually in Dublin but it included speakers from the British Isles, European, and even some American speakers. And it was about water quality. And he was talking about, he did some microbiology, but then he was talking about the chemical quality of water, water supplies. And, and fairly early on he said, 'And of course, when you're looking at this, you've got to remember, until the law changed in, in 1995,' blah blah blah blah blah, no a bit later, 'of course that, when the law changed...' And he kept talking about the law changing. Law, the law where? [pause] It wouldn't apply to the American audience members, or the Europeans. It wouldn't even apply to some of the people from the British Isles, from the UK, because he was actually talking about England and Wales. There had been a change in the law, in the regulations about permissible levels of different chemicals. So it wouldn't even apply to Scotland. And I went up to him afterwards and made this point, and he said, 'Well, everybody knows.' 'No they don't, I'm sorry, I'm sorry to be critical but the fact is that, you've been talking about a change in the law that actually wouldn't mean anything to ninety per cent of your audience,' you know? So that's the sort of thing that we tried to get across to our students, that you've got to think about this audience, you know, and their knowledge, or lack of knowledge, and which you can rely on, you know that they'll know what a mitochondria is, say, but they might not know, something else. So that, that was really the main point of these courses, the public part of it. Even applies in a way to scientific meetings, you know,

I've been to scientific meetings where people have gone into levels or used terminology that would not be familiar to some of the audience. So that's what we were trying to achieve.

[0:38:01]

*Do you know whether at this time there were other people running similar courses?*

Yes, there were, there were one or two other, other people doing it. [pause] BBSRC, although I, I... I got asked to chair some courses for BBSRC with other speakers. My role was just to sort of stitch it all together really. Yes, there were one or two other... I mean I think Birkbeck was doing something, and there was... I'm sorry, I really don't, don't know any details, but I think Birkbeck has some courses. Maybe, I think there was somebody at University of Bristol running courses as well, but...

*And, did you, Peter and Stephen, when Stephen was involved, have different roles within course design and delivery?*

Well, I mean, clearly Peter was, Peter was looking after radio and television, the broadcasting part, yes, very much so. And, including, yes, one of his sessions was done an interview, you know, 'OK, we're going to be on radio live, and you've got four minutes, and I'm going to ask you some questions, and, I'll tell you in advance what they'll be. Go over there and think about it, and then come and we'll do an interview.' We did this with, in front of the audience, so they could comment as well. So, that was, that was good actually, that worked very very well. Some people were able to do that very well. One or two were always absolutely hopeless, no idea at all. They went into scientific, scientific meeting mode. [laughs] And, sometimes you couldn't shake people out of that, you know, they would be, they would say things like, 'Well everybody knows that.' And what I used to do then, when somebody said, 'Look, everybody knows that, everybody knows, you know, what an operon is or what a, a restriction endonuclease is,' I would say, 'OK, I don't need to give you examples, but just think about this. You imagine that you are transplanted into a solid state physics meeting, and you're... Now they have got terminology and concepts that are as foreign to you as, as vice versa.' And they would say, 'Oh, yes, mm.' [laughs] Just hadn't thought about that. But, I have to emphasise one thing, that at the end of

the day, we would always, it comes out of what I've just said really, we would always, always, always emphasise that, the most important thing about communication is knowing your audience. So, so important, and, when people make mistakes, it's usually because they, they hadn't thought about, who are these people? What do they know? Even, even at meetings, even at, at conferences and meetings, there will be some people in the room who... I once got, illustrating this, I once got asked to give a talk at the University of Bristol by a man called John Beringer. And, he asked me to give this talk. And it was for... I said, 'Well who are they?' He said, 'Oh they're, it's, it's first-year microbiology students.' So I said, 'OK, that's fine. I think I'll, I know, I've been a first-year in microbiology. I know things have changed, but, I've got a rough idea about what, you know, what level to speak at.' And, it was a departmental event every month. And we talked a bit more about it. And then, we were just finishing, and then he said, 'Oh,' he said, he said, 'You might be interested to know that the organic chemists come to the seminars as well.' And I said, 'John, you're telling me something very very important. You're telling me that about a quarter of the audience are not microbiologists.' [laughs] So, 'Oh, yeah, mm.' [laughs] I need, I need to take that on board. I may need to explain the difference between a bacterium and a virus, for example, for an organic chemist with no, you know, little or no biology, no microbiology at all. So, we were always emphasising that. In fact we would say, you know, if we, if we were to, on day one if we were to start, and, we've got one thing to say to you, and, for some reason the course is cancelled, we're all going home, there's one thing we can say now, it's to think about your audience, think about your readers. Most important of all.

[0:42:39]

*Is there something to say about the different reasons why different places were interested in booking your courses, commissioning your courses? You've got the Wellcome Trust, Imperial Cancer Research, University of Oxford Zoology Department, and then, you also mentioned St Andrews.*

Yes.

*Did the different institutions, did you get a sense of their particular reasons for wanting the training to take place?*

No, I think, I think they all, they, they all felt concerned with either the deficiency of professional communication in meetings... I mean everybody's been to scientific meetings, heard talks, that were truly dreadful, and it's been, you know, it's just been part of the culture over the years. I think PowerPoint might have helped to improve the standards of quality, but particularly stuff on the screen used to be absolutely dreadful. And I think people were aware of that, but aware that nothing was being done about it. And the other half is the public thing which, did relate very much to the ethos of Bodmer and the notion that organisations should be doing more to educate the public, to persuade the public that science is a good thing and should be supported. And element of the, of support as well, you know. And, and also, to some extent, particularly in the case of Germany I mention with the European meetings, concern about a degree of, of hostility towards scientific developments. Yes. People being suspicious and hostile or, you know, instinctively rejecting. I mean when you hear a term like Frankenstein food, you obviously think, oh that must be bad. But it's just a shibboleth, it's just a label that somebody's put on it, and... But those things do acquire a life of their own, and influence public discussion. I remember talking to a physicist from CERN, an old, *New Scientist*, colleague actually, she went to work at CERN, and, at the height of the furore about GM food, we met. And, I mean... So she's a qualified, she's a PhD physicist. And she started saying things about GM food. I said, 'What have you got against GM food?' 'Well,' she said, 'it's, you know, I mean we all know it's dreadful, it's dreadful stuff and being foisted on us. We're all being used as guinea pigs to eat this stuff that's dangerous.' I said, 'Have you looked at the evidence?' And she hadn't. She knew nothing about it. I said, 'Look, just one point, let me make. Traditional plant breeding has relied on haphazard fusion of hybridisation between different lines, different strains, different plants. You then try to pick out of the progeny the one that has actually got the qualities you want. But the basic process is totally random. Also it uses radiation. Whereas the new method of doing this, genetic modification, moves one gene, not hundreds of genes but one at a time, to put what you, the one you want into this recipient.' And she said, 'Oh,' she said, 'nobody ever told me that.' And she was a scientist. And she had simply picked up this notion. And she said something about smoke and, no smoke without fire. She felt that... She said, 'But why is everybody going on about it then?' And I said, 'Well you tell me.' [laughs]



[0:46:26]

*What were the, the Zoology Department at Oxford concerned about in terms of public, the public half of this, the public communicator?*

It was the same thing, really, about... Plus, there was one specific element here. The... It, it, the guy who asked us, used to run this MSc in cell biology, David Shotton his name was, and he just decided, reflecting on things he was reading about public attitudes to science, that they should do something about it, as well as the professional, the peer review communication. There was, however, an additional reason, which was that it was already being talked about, and it actually came to happen while, during the years we were, we were working there, and that was the proposal to build a new, a new building, a new, next to the Zoology Department which we worked in, next door there was to be a new building which was going to have inside it an animal facility which would be breeding animals for use in work on Parkinson's disease and Alzheimer's disease. And there was already, even, it was years ahead at that point, but there was already opposition from local animal activists about it. And, so that was another issue, you know. And, in fact during the time Peter and I were going there, was it, was two sessions per year, or was it more? I think it was more like three or four courses per year. And, every time we went during this period when the... I don't know whether, whether you remember reading about this, it was really quite heavy, the campaigning against this building where, you know, they'd built a security fence around it and there were these guys with placards across the road shouting, shouting at passers-by. And we had to go through the, you know, through the barricades to get into the building. It was quite heavy, very very heavy, very, very angry people. So that, that was, that was a component I think of David Shotton originally asking us about this, because that was going to be coming along at some point.

*Did your course take that on directly, kind of public interest in science and the way that you respond to that?*

Yes, well yes, we talked about public interest and how to deal with it, and how to deal with, you know, how to deal with, critics and, you know, people who were opposed to

these things, including, and also at what was then ICRF, Imperial Cancer Research Fund, where we had, we had a session there, and with the Wellcome. You see, quite often we actually would have somebody coming in to talk about this stuff, in addition to Peter and I, we'd have somebody coming in to talk on this particular issue. We didn't do that in Oxford; we addressed it ourselves. I mean I used to make the point of saying, you know, how, you know, important it was for scientists to be open to talk about this stuff and to recognise people's points of view. I, I used to always make the point that, it's easy for me, I'm not, you know, I'm not here, so it's easy for me to make these observations. But... And also, I used to say that really, the problems we've now got, not just in Oxford but more generally with animal research, is, is really associated with years of neglect of scientists who chose not to, not to talk about this stuff, you know. I mean even the name of the Research Defence Society is, defensive if you like. There have been very few attempts to be, to be very positive and to go out arguing the benefits of animal research, to say, look, we, nobody likes the idea of doing research on animals, but, we believe it is necessary; it cannot all be replaced by test tubes or whatever. So, I think it was on our courses, in one way or another we would address these issues.

[End of Track 11]

[Track 12]

*OK. It's April the 1<sup>st</sup> today, and that's provoked a memory which we'll start with.*

Yes. It reminds me of an occasion when we published an article, allegedly by somebody called Irwin Friml, actually an academic called Harry Collins, Irwin Friml was his pseudonym. And the article was entitled 'The Halstead Hieroglyph'. It was a one-page article purporting to report on the discovery in Halstead in Essex of fragments of pottery which the authors had pieced together, and the story of the fragments of pottery showed a number of scantily-clad young women dancing around and doing various things to each other. And, it was a little bit risqué, but not, not by modern standards at all. But anyway, we published this, and it was April the 1<sup>st</sup>. And, a few days later I got a letter from a man called Glyn Daniel, who was a very distinguished archaeologist at the time, also publicly known because he used to chair a television show called *Animal, Vegetable, Mineral?*, where the panel identified various objects. And, anyway, he wrote to me and said, this article had been drawn to his attention, and he thought it was disgraceful. And clearly... I mean, actually he implied that he thought I may not have realised it was a spoof; it was clearly a spoof. The story lacks all credibility and should not have been published. 'I would ask you to publish next week in *New Scientist* an immediate apology and retraction.' So I simply wrote a short letter back saying, 'Had you noticed the date of the publication, April 1?' To which he responded by saying, 'Yes, the significance of that has now occurred to me. [laughs] This makes it even more reprehensible. And, all I can say to you, Dr Dixon, is that unless you are prepared to publish prominently a complete retraction and apology, I will have no alternative but to publish an editorial about this matter in *Antiquity*. [laughs] *Antiquity* being a journal, an archaeological journal. And I think that's, I've had had a number of threats made against me in my lifetime of various sorts, and that clearly is, you know, the worst by a long way, you know, the thought of being... [laughs]

*Yes, terrible.*

...criticised in *Antiquity*. What I can't remember now is whether he actually made good his promise or threat, I, I don't know whether the editorial did appear or whether he... Maybe he thought better of it, I can't remember.

*And you say that you did other, other April the 1<sup>st</sup> type articles during your time there?*

Yes. The others were, not memorable I would say. They were quite short items actually, usually. This was a, this was the only, it wasn't that long, it was only one page, but it was a major feature article, which I can recall from that time.

[0:03:16]

*Thank you. And you've noted some episodes in your life that you think are omissions in the life story so far, and, I wonder whether you could tell us about those?*

Yes. Well, it occurred to me, there were two things. One is the, as you know I've been mostly concerned with popularisation of science and public relations of science if you like. But there was one thing, which I did for ten years or so, which was, as editor of a journal publishing original research papers. It was called *Medical Science Research, MSR*, originally launched by a man called David Horrobin. And, during, when I took it over as editor, and Kath did the, all the, everything else, all the administration, she actually ran it and dealt with authors and so on, it was published by Elsevier, it was also published at one time by Lippincott. And basically, it, its special appeal was to publish relatively short papers in the whole field of medical science, particularly with developing countries in mind. We had a lot of papers submitted and published by authors in various African countries. And part of David Horrobin's original hope for the journal was that it, apart from publishing good stuff, it would help young scientists in developing countries to understand the reviewing process, how papers are evaluated, and how they have to respond to criticism and so on, that whole thing of the, the refereeing process. So I was in the middle of that, I had a very good panel of, I think about thirty or forty reviewers, and we, we received papers and, some, as with any journal, some got sent back immediately because they were inappropriate or clearly, not worth considering. The majority of them went out for review, and, and, and many of them were, were published, and, we... Actually

what I remember about it is that, on more than one occasion we did actually receive appreciative comments and letters from authors who showed that what David Horrobin had originally hoped was actually working, people were very grateful for the fact that, you know, I would have passed on a reviewer's comments with my own comments as well, and they found this useful in terms of presenting their, really writing their own paper but also presenting other papers in future. But that, that was my one, my one exercise in, in learned journal publishing.

*When did that period begin then?*

I can't... The dates are in *Who's Who*.

*OK. Yes.*

I'm sorry, I just, I just don't have them. In the Eighties, Eighties into the Nineties I think. But, I simply can't remember at this moment. But they're in *Who's Who*.

[0:06:24]

*And when you say, for someone that's completely outside of this world, when you say that certain papers were sent back because they were obviously unsuitable, what does that, what does that mean? For someone who it might not be obvious for?*

Well, sometimes you looked at a study and it just, it simply was, it might have been a very small sample size of some organism that was being studied or, some ecology or whatever, and the clearly indicated it wasn't, the conclusions were not going to be themselves particularly significant. It might... Quite often actually, one of the things was, in fact two of the main arguments that used to occur between reviewers and, and authors, potential authors, was, one was statistical methods. We would, we would get a comment back from a reviewer saying, 'Well look, this particular statistical test is not actually valid, it's not appropriate for the, for these data. We would invariably get back from the author a letter saying, 'Yes, but we have our statistical adviser and he, [laughs] he insists that this is valid,' and so on. So the whole thing was... And there was one curious aspect of this. I inherited a, from the previous editor, a rather rigid rule which was that, if you were to say our statistical measure for significance is p less

than 0.05, if you yourself as the author said that is our level of significance, you were then not allowed in your paper to mention any data that didn't reach that level. People would try to do it, they would say, 'Well of course this doesn't reach our level of significance as stated in our methods, but, we think these figures are suggestive.'

[laughs] And I inherited and continued with this system. I know, this is not an exact science, there's nothing magical about 0.05, but, or 0.01, but, yah, having agreed that as a criterion, we used to stick to it. The other issue, you ask about papers being rejected or things considered not suitable. Sadly we used to get papers from a number of countries where the authors were doing unacceptable things to experimental animals. We took the view that, in terms of animal experimentation, we should use the UK Home Office guidelines as to what was and was not acceptable. Some of these things were simply, rather trivial in a sense, that, the Home Office regulations at the time, for example, say that you must say what you've done with your animals at the end of the experiments, were they humanely killed? Some people didn't even mention it. [laughs] So, that's, yes, sounds a bit trivial, but, that type of thing did come up quite often, some of our advisers would say, 'Well look, this is the type of procedure which would not be allowed under Home Office, UK Home Office guidelines for animal work.' And that's what we stuck to. And again, that, I think, was quite helpful to some authors, or it was certainly something they found interesting, because, I'd better not name, but there were two particular European countries where work was being done that would not be done in a UK laboratory, and they would be, they would express some surprise that we were criticising a paper on those grounds. But hopefully that was also part of the educational process for authors who did that sort of thing.

*What were scientists in those countries, without naming them, doing that would not have been done elsewhere?*

Well it was simply, it would, it might be a, some sort of surgical procedure that was being done with what looked to be inadequate anaesthesia. It might be work that was being done for what we would consider, we took this from our reviewers, something that was really rather trivial and simply not worth doing, and shouldn't, you shouldn't be using animals to establish or re-establish or confirm something that we know already perfectly well. So, it was things of that sort really, mm.

[0:11:13]

*Thank you. And could you tell me about the, the other work that you were involved with that you haven't talked about so far concerning health effects of alcohol?*

That's right. Yes, well, this is an example of, I don't know whether I've said this to you in the course of the earlier interviews, but, the role of chance in a career is often overlooked, and it's clearly important. This is a story that began with my giving a talk at a conference in Geneva on the scientific conflict in the social arena, I think it was, the title was something like that. It was about issues, biomedical issues that were causing public concern and were being ventilated and discussed in public. And, I, I happened to mention something that was interesting me at that time which was the, although there's lots of evidence of really bad effects of alcohol on the liver, on the brain and so on that's been known for a long time, heavy drinking raises blood pressure and so on, so all that was well-established. But at this time there were new claims emerging that modest levels of alcohol consumption, moderate social drinking it used to be called, could be beneficial to health, particularly to cardiovascular health, could, you know, to some degree be protective against cardiovascular disease. And these claims had been published. But also there were, there were other authors who were questioning these findings on a number of grounds, one of which was that, if you actually compare two groups of people, you've got people, one group of drinkers, another group over here, non-drinkers, you ought to bear in mind that some of the non-drinkers will be people who gave up drinking, either because they felt it might be affecting their health, or because they knew from, you know, evidence from, from doctors they've seen, that it clearly was affecting their health. So, you've got a rather contaminated group, you've got lifelong abstainers mixed up with people who used to drink but no longer do so for those reasons. They became known as sick quitters, [laughs] people who had given up drinking. And there were critics of the hypothesis that low levels of alcohol consumption are beneficial, there were critics of that hypothesis based on this, they say, 'Look, look at your control group here, look at your non-drinkers. They're not all the same, they need to be separated.' And eventually that was done, and, you know, studies were done in which people were identified in that way. Now I happened to mention, the reason I bring it up here is that I happened to mention that at this meeting in Geneva as an example of scientific

method and the use you make of scientific method. Unknown to me there was in the audience somebody from Guinness, whose name was Martin Cannon. And he came up to me afterwards and said, 'This is very interesting. Tell me more.' So we sat down over coffee and talked. And a few weeks later I got asked... He said 'I think we've got a lot, there's probably going to be a lot more about the, the, possibly beneficial effects of light drinking. Would you do us a quarterly, sort of, quarterly review if you like, of the stuff that's appearing in the journals, including stuff about the ill-effects of alcohol?' So I thought about it. I said, 'Well it's not really my subject actually. [laughs] I'm a microbiologist.' But, he said, 'No no, but, but you,' he said, 'you know about the methods and the studies that are done and what we might not recognise to be deficiencies of, of certain studies, or the comparison between two different studies, one might be stronger than another, for reasons we wouldn't know. That's what we want help on.' So I started doing it. And I did that for, not actually very long, maybe, maybe two years, when the person I'm talking about was leaving, there was a new director appointed, and, to cut a long story short, they decided they didn't want to go on with this quarterly report I did for them. But then, this is the chance, well, the second chance, Martin Cannon being in my audience in Geneva was one chance, and the next one is that I suddenly got a call from a man called Dr John Rae, r-a-e, who I, I, I knew slightly because he had been headmaster of Westminster School, and in my *New Scientist* days I had gone to give a talk, a lunchtime talk at the sixth form. So I knew him. Anyway, he had now become the first director of something called the Portman Group, have you come across that? Well the Portman Group, so named because it was located near Portman Square in London, they had been established by the alcohol industry to do things, and they were still at the stage of discussing what sort of activities they might do, to help people to understand alcohol and its effects and to, to campaign against alcohol abuse. This was one of their, one of their key factors in their original brief. So John Rae rang me up and he said, he said, 'I know you've been doing this report regularly for Guinness.' He said, 'They've been passing it on to me.' [laughs] I didn't know this. So he had been seeing my, my typed reports. And he said, 'We'd like you to do something exactly the same as that, but we'll publish it, it'll be published as a quarterly, the *Quarterly Review*.' That's what it was called. So I started doing that. And that actually went on for the best part of ten years. Again the dates you will find I think in, in *Who's Who*. That's something which, as I say, that became a regular... So I used



to, I could do it on the Net now, but I used to go down to the Ciba Foundation library and RSM library, digging out papers, newly-published papers on, on alcohol and health. And, and trying to be fair, and trying to maintain a balance between the good news, if you like, and the bad news about alcohol. I did that regularly for, nearly ten years I think. And it was, it seemed to be appreciated and, used to get picked up in the, my, things I had picked up in my, in the review, used to get picked up in the, in the media generally. But again, I emphasise, what they were wanting was, they were wanting help to understand that, you know, a case-control study is better than one that's not a case-control study, or a longitudinal study in which you follow people over time, is better than a snapshot study when you're looking at people at one particular moment in time. Things of that sort which they wouldn't even notice, but they, and they wanted those things highlighting, to say, 'This is a strong study, because,' explain why that was good evidence, whereas other papers might reach contrary conclusions but be based on, on poor evidence, size of population, samples size, would come into it obviously. And indeed, where the journal had been published, because, clearly, papers published in, journals that are heavily cited, are clearly more influential than those that are published in a rather more obscure journal. So these, these were, these were the things I would draw attention to.

[interruption by Kath]

[0;19:40]

*Over that period did you converge on some conclusions about evidence for and against, harmful health effects of alcohol or beneficial health?*

Oh, I think the harmful effects were clear, were always clear really, and it's always to do with heavy drinking. I mean there might be genetic subgroups of people who are particularly susceptible – well there are, we know this, we know this from the, evidence from different countries, you know. You probably know of people, the Japanese people for example are very sensitive to alcohol. It's all to do with the, the genetics of the, the enzymes that break down alcohol, alcohol dehydrogenase and others. And, it would be the protein, the enzyme is different in different countries. So, this means that some people detoxify, get rid of alcohol, the liver breaks it down more quickly than others. So, that, that story was, was already known, although it

was being worked out more deeply at a genetic level. But on the, yes, I mean on the, on the evidence about the protective effects, or the beneficial effects, yes, I think I did, I, I did accept the evidence. I had been a bit sceptical initially, but I think, I think it is good evidence, particularly because of this question of clarifying the content of the non-drinking group that you compare the drinkers with. And I think, I think it is good evidence. And of course it went beyond, it went into other areas too, beyond cardiovascular conditions. So, yes, I think, I mean, obviously, there were a number of quite heavy people, scientists, who were very committed in their views against alcohol, who tried very hard to knock this down, which is good, I mean it's good science, they were trying very hard to invalidate the conclusions about the beneficial effects. It was good. But it, their efforts never convinced me, I always felt it was, it was good evidence. But of course we are talking about very low, you know, very modest levels of alcohol, you know, in terms of units per day. One of the amusing things that came out of this was, I had been reading lots of papers, I began to realise that what people would describe as light drinking or moderate social drinking was a bit subjective. [laughs] There was no agreed level, agreed amongst researchers. And I think to some extent, I had suspicions anyway, that this reflected people's own habits, what they deemed to be light drinking. [laughs]

*What were the motivations of the group of scientists who you say were working to attempt to discredit the evidence for the health effects? Were these simply scientific motivations, or...?*

I would say not. I would say they were really people who, for one reason, perhaps family reasons, or social reasons, they had seen the, they had seen the ill-effects of alcohol abuse, and they... I mean some of them really did feel that you should, nobody should drink at all, because of escalation, if you drink moderately you might, you might start to drink more, simple as that really. So... And, a couple of these people, I won't name them but, a couple of these people were really of that, of that position, that they just, they really didn't want alcohol to exist at all, didn't want people to be drinking at all, they had a very heavy commitment, an emotional commitment, against it. In one case that I can think of it was definitely a personal family reason, but it shouldn't affect their scientific judgement, but I'm afraid, I'm afraid it did.

*Were there any whose position against alcohol was a kind of moral position rather than a public concern position, you said?*

Oh yes. Yes, I, yes I, I think so. I think that's part, yes, one of the motivations for people, they just... Yes, I mean there's always been, you know, in society there's always been that temperance, you know, avoidance of alcohol, terrible, terrible thing. That, yes, that element, a moral element, yes, a bit, quasi-religious perhaps, yes. And that certainly affected one person I can think of, affected their scientific judgement, I think that's right.

*Quasi-religious, rather than specific?*

Yes. Yes. Well I, I mentioned temperance and the arguments about the social, socially corrosive effects of alcohol, which have been well ventilated over the years.  
Mm.

[0:24:45]

*Thank you. Now, I'm going to return to a few of the things that we've talked about before. If you feel that you've said everything there is to say, that's fine, but it's just for sort of completeness and for clarity.*

Mm.

*I was interested, partly because of the project that this interview is linked to, in the, your account of your loss of what you call a nominal Christian faith aged about eleven.*

Mm.

*Which you say was, it was connected to a perception that Christianity was opposed to science, which came from watching *The Brains Trust* and your own reading, rather than any discussions at school, even with someone like Bug Allen. Is that fair, is that...?*

Yes. Yes, I... Yes, I would say so, yes. Yes.

*But you also had a negative experience of talking to a particular vicar who was the new vicar at the church that you were going to for the musical events and so on.*

That's right. Yes. Yes. Yes. Yes, very much so, that was probably the decisive thing really that, when I was, I would think rather diffidently, talking about my doubts and my questions, he, he didn't respond by saying, 'Oh yes, you know, we all have doubts and we all have this and... But at the end of the day, you know, I've come to believe,' he had come to believe, 'that the Christian story was, was, you know, was valid.' I didn't get anything like that from him. What I got was, anger. I mean he just reacted very badly, totally intolerant. And, I found that really, well, it didn't help, quite the reverse, I mean, he was a very rigid sort of person really. I mean, I mentioned this before, but he, when he became vicar of the parish of Cockerton in Darlington, of St Mary's Church, he, he sent a letter to every house. Have I told you this?

*Mm.*

Yes.

*Even if they weren't churchgoers.*

Yes. You owe the tithe, one tithe of your money, a tenth of your money, you owe it to the... People, I mean, it sort of included Roman Catholics, non-believers, some of whom made a fuss about it and were told, 'But we are the established church, and therefore...' [laughs] So that's the sort of person he was, and, it wasn't helpful to me at all. He didn't help me to discuss or think through or talk about these issues at all; just simply, I was made to feel I was, you know, well, I was, just beyond the pale, you know.

*And are you able to make a judgement on the relative importance of those two things in your loss of faith? Like you have got this interest in why people do believe or don't*

*believe certain things. And you say that the discussion with this vicar, or, not discussion but the experience with this vicar, was decisive, but, what should we think about the sort of relative importance of, a) science and religion reading, and b) this particular autobiographical experience, in your own loss of nominal faith? What's the relative importance, or the relative significance of it?*

Well I suppose, I mean the experience with this vicar was, was, at the time was absolutely, you know, traumatic, and, and so on. Whereas the other things you've mentioned, my general reading and talking to people, observing people's behaviour and their beliefs and so on and, which continued over many years, that was obviously more, a more gradual process, and I, I... But even there of course I, I became aware of people who were more or less tolerant, more or less, not just more or less tolerant, more or less, widely, you know, widely ranging in their thinking and their reading and their awareness of, of... I mean, I happened to have a friend, closest friend, who died about a year ago, and this was somebody who inherited from his own parents, particularly his father, a sort of, trinity, [laughs] if can use that religious cliché, of, of Anglican Christianity, the Freemasons and the Conservative Party, these were his three things. And on none of those, on none of those items did he ever change his view, ever. [laughs] And we're talking about religion here, but that, that, this was something, I think possibly opposite end of the pole to me in terms of trying to be open and trying to be reasonable about these things, he never, he couldn't question... He once told me that, quoted something in the Bible and I, I said, 'Why do you quote, why are you taking that from the Bible?' He said, 'Because it's the greatest book in the world.' I said, 'OK, so how do you make that judgement compared with other books, other scriptural, other, you know, holy books, so-called?' And he just said, 'Well because it is.' [laughs] And, I mean, I quote that simply as, I think the extreme end from, from my, I hope, much more open approach to these things.

*Was he a friend of yours at this time, as a child, a childhood friend?*

Oh yes, he was, yes, I mean the conversation we had about the Bible was, was when I was a... In fact he played in my band which I talked about earlier, he was, I was just, just sort of, recruiting him if you like into the band. I would have been a, a youngish teenager at the time. But he, no he just never ever, ever ever saw any... He

couldn't.... And his own children have, at the funeral the other, last autumn, one of his children who is a science teacher now, she, she quoted this. She was saying some, much stronger things about him than I would say, in terms of his rigid thinking you know. And, I mean you see that in other people, you see it in other, other countries around the world where not just one individual but a whole community is very rigid in their thinking. And simply can't see, they can't actually, will not or cannot look beyond. I mean the other way of putting this, the other thing, conversation with my friend Ken was that, I said, 'But you could have been, you know, what you are saying is what you've inherited, in terms of beliefs; you, you might have been born into some Hindu sect in Delhi.' And he said, 'But I wasn't.' [laughs] So that was all there was to say for him. He could not see, he couldn't imagine this, the broader picture at all. And this is what his daughter brought up with me, just couldn't, couldn't, just couldn't get out of this straightjacket. Didn't realise he was in a straightjacket. And that, I think that, when I think of world religion, in conflict, that's what I think about most often, people, they've been, you know... I mean we have people at the moment arguing about whether the militant Muslims represent true, real Islam or not. Well... And people get very very angry with each other about this. 'Oh no, but you're not a real Muslim. I'm a real Muslim.' [laughs] And this, I, I really get quite cross about that sort of thing. Because, particularly because, I don't want to ally myself with either of these two parties; I just want them each to show a little bit more understanding of each other, and where historically they've come from, or the other people came from. And that really upsets me. We haven't... there was a time when we haven't seen a lot of that sort of thing within the British Isles, but of course, you know, Northern Ireland, conflict there. I've talked to people there from either Protestant or Roman Catholic communities in Northern Ireland when the Troubles were at their height who simply did not, they could not, even to knock it down, they couldn't see the other person's point of view, they couldn't feel it, they couldn't empathise in any degree at all, or see it as subjectivity of beliefs. The main thing that bothers me actually about, about religious belief, compared with somebody who really has given some time to look at other beliefs and reflect on it and tried, to, you know, reach some accommodation and...

[0:33:31]

*For what reason were you... I'll come back to the vicar in a minute, but this is very interesting. For what reason were you talking to people in Northern Ireland during the Troubles, in what role, or...?*

Oh, just on, on the fringes of my 'Science and Society' stuff, you know, committees and people I met there who... I mean, generally speaking, the people one would meet on, on committees, they were scientists, and so they tended not to be rigid and intolerant, but, I did, I did meet one or two in that context.

*Oh these were scientists who were Northern Irish, from Northern Ireland?*

That's right, yes, yes. Yes, yes. Yes. And they, they clearly were not applying their scientific detachment and critical sense to, to their religious beliefs and the origin of them, the historical emergence of them. They just weren't doing that, they'd closed that door.

[0:34:33]

*Thank you. This, what you now call a traumatic experience in talking to the, the new vicar, did you talk to anyone else about that experience? Did you go home and tell your parents about it, or tell friends about it?*

I can't remember telling my parents. I mean this was the beginning of, well, it was, it was when I did actually leave the church. It was traumatic for the other reason, that I had been much involved in the, the youth club and the, had an amateur dramatic society, putting on Gilbert and Sullivan every year, which I loved, and I used to sing in the choir. And all that had to come to an end as well. [laughs] I, I had... You know, so that was an additional loss for me really, that I had lost my religious faith, but I had lost the social element as well. So, the people I talked to there about why I was leaving, they, on the whole they just, they just tended to see it as, not that important really, and, that sounds a bit dismissive of him, but, I would have thought their religious views were somewhat nominal really. And they used to... They used to say, 'Oh, think about this.' Actually, two people, I can remember, used to say, 'You think, you think about, you think too much about this stuff.' [laughs] And I said, 'You can't think too much about it.' [laughs] Whereas I felt they were being

rather superficial. I know that what I'm saying sounds arrogant, but it, this is the truth, I, you know, I just felt, if you've got some sort of wit in your, in your head, you want to apply it, you know, I mean brain, you know, some sort of intelligence, and ability to think and tease out issues, you ought to do so, and not just accept, you know, social or family reasons what you've been presented with, what you've grown up in.

*Which suggests that you did talk to your friends at church about your doubts, so you, you talked to them. Was there anyone else that you talked to about this sort of thing?*

No, I don't, I can't think, can't remember any, anyone else really. No.

[0:36:37]

*And the previous vicar, what do you remember of him? Because this was a new vicar wasn't it, that...?*

Yes. Well the previous vicar was a jovial man basically. [laughs] I think he enjoyed being a vicar, and the lovely house and the housekeeper that went with it, and all that, you know. An Anglican vicar at that time had a very comfortable life I would say. And he loved, he loved that, and, you know, wandering across from his lovely detached house to the church which was about 200 yards away. It was, it was a lovely sort of life for him really, and I, I wouldn't have thought... I can't remember ever having any conversation with him, apart from the very first, when I got confirmed, my very first confirmation class, when he started by saying, 'Now, there are two aspects of confirmation classes, we'll teach this. There are two aspects of confirmation. One is what you do, and the other part is what God does.' OK. So, next week, next confirmation class, now, a group of us, 'Now, who can remember what I said last week, what are the two most important...?' [laughs] And this came up every, every, every... And he, quite honestly he didn't have much more to say, really. I mean I don't remember... I certainly didn't listen to what he said and think, oh I'm convinced by what he's telling me here, this really... You know. It was, it was a, it was a social occasion really, as the whole church scene was really. [pause] And, as I said, the, the amateur dramatic society was, you know, it was at least as important as, as the church itself. The other things I remember was, I became a server at Communion, and the



things I remember about that, again, were not, not, not religious, not to do with religious belief or liturgy or anything, except, the music, I mean, mentioning the word liturgy, I did always love the church music in the Anglican tradition of choral music. But the things I actually remember are, first, one thing was the very bad breath the vicar had. [laughs] This jovial man had a terrible, terrible halitosis, which presumably nobody ever told him about or... Anyway. But it's still with me all these years later. The other thing was that I had this task of, as a server, I started on one side of the altar, and at some point in the service I moved and sat on, I can't remember why but something to do with the theatre of it, and what I had to do. And I had to count the number of communicants they were called on that side of the church, when I was sitting on the left-hand... When I moved over, I had to count the number on the other side and add them up. And I had to get it right. And once I forgot to count the first lot. I mean, absolutely trivial but these are things I remember. And above all, I have to say, I remember this jovial vicar pouring out into the Communion, what's it called? Oh it's got a name. [pause] Anyway, the, the cup, Communion, the cup. I remember him pouring out far more wine than he actually was going to need. [laughs] And of course the vicar at the end of the Communion service took swigs, would swig what was left over. [laughs] And so, I think there was a, that's going back to my other story, I think there was a factor there too. No, he was, he was basically a lovely man. Beaming, red beaming face, and, I don't remember anything significant about his religious beliefs at all really. He was clearly a, an Anglican vicar and therefore, he believed in what he ought to believe in. But... No. The social, it was a social event.

[0:41:04]

*What propelled you then to take part in confirmation classes and to...?*

That was really in order to, in order to be part of this... It wasn't, it wasn't a condition, but it was really... I had a friend who was in this amateur dramatic society and the youth club already, and, I think by implication it, you had to become a full church member. I don't think there was ever, you know, a rigid rule, but it was part of that. You really ought to become a full church member. Plus the fact that my, I remember we were discussing this at home, my mother was, as I've said before, was pretty irreligious, my father had no religious beliefs that I can remember at all, except

on, I do remember on this particular point, he said, 'Well, I think you probably ought to get confirmed because it will probably help you in your career, in later years.' I can't think where that came from, but he felt that being a confirmed member of the Anglican Church would somehow benefit in, [laughs] in my career.

[0:42:21]

*Thank you. Do you have any detailed memories of The Brains Trust? I ask because you mention it a couple of times, and you mention that it, in a way that suggests that it was influential.*

Mm.

*But for listeners who never saw it, have never seen it, or heard it, what do you remember of it, in detail?*

Well, it was originally on radio, and then it went on to television, and, it, it... I think there was a panel of I think four people usually, and Julian Huxley was one, who I mentioned before, another was a man called Commander Campbell, who, the thing I remember, he was known for saying, 'When I was in Patagonia...' [laughs] I don't know on what basis he was in Patagonia, but he used to bring this up regularly, and usually irrelevantly. It was, well, it went on of course long after I was listening or watching it. It was a panel of I think four people, and they would talk about, around current affairs really, although, well about anything that anybody chose to write in and ask about. It was based on letters from, questions from the public. And it was... I mean I think what was good about it was, it was entertaining but it was also informative as well, it was, it was a sort of, minor part of my education in the sense of, you know... People like Julian Huxley, who I always felt, whether he was talking about religion or not, or just social issues, it seemed to me that he was applying, you know, good, carefully considered judgement, rational judgement to social issues, and that appealed to me very much. You know, he was, he was very much against, against prejudice and, and people basing their, their behaviour on, on prejudice or hunch or, whatever. He was, he wanted to look at evidence, he wanted people to think carefully about the, whatever facts there were on a particular issue. He always... I mean he did have this hankering for religion of course, I mean he was basically an

agnostic but he, he did, he did actually have... And this might have appealed to me at the time, that, it's when I was hoping really to square religious belief with, with science, and I think, he's in the back of my mind constantly for that reason too. I mean he, you know the Teilhard de Chardin book called *The Phenomenon of Man*, well he introduced that book, because he, again he liked, he obviously liked the fact that here was a, a Jesuit, a sort of, sort of palaeontologist who was trying to square religious belief with, with science. But, I mean, I don't know, I would like to have talked to Huxley, who I never met, but I would like to have talked to him in his much later years and find out what he, what he felt, because, Teilhard de Chardin had been roundly condemned by an awful lot of scientists who felt that that book was awful, particularly Peter, my real hero, Peter Medawar, really savaged it, it was a... Have I mentioned this before, the...? If you were to dig out... Have I mentioned it? Peter Medawar's review of, which is in one of his collection of essays, in a book form, and it was the review by Peter Medawar of *The Phenomenon of Man* by Teilhard de Chardin. And it's a, it's a wonderful piece of writing. It's witty, it's, it's totally damning of, [laughs] of, of Teilhard de Chardin's position, you know. I mean Teilhard de Chardin, he said some weird things, like, human love has its origins in the propensity of sodium and chloride to unite us. Sodium chloride. Things like that. But do... I can probably find out, it's, I have it upstairs, but somewhere, we can even do you a photocopy, if you remind me before we go.

*Mm.*

And I'll dig it out for you. It's a wonderful piece of critical writing. In fact, why don't I go and get it now?

*Please.*

If we're going to have coffee.

[End of Track 12]

[Track 13]

*We, just before we stopped, we were talking about The Brains Trust, and you had mentioned Peter Medawar. And, the Reith lectures were, you listened to when they were broadcast...*

Yes.

*...in the late Fifties. Would you...*

'59. Can't believe it. [laughs]

*Would you talk about, would you talk about, please, why you say that these were an influence on you, in what way? For the person, for someone who hasn't listened to them themselves, could you say what it was about the content?*

Yes. I... Well, I think, what appealed to me about it was that, it was really about, called *The Future of Man*, and he's trying to sort of look to the future and look at prediction and, historical and social prediction and the fallibility of prediction, how we do our best to see the future and what trends mean and so on. And he, in the course of that he addressed a number of scientific issues. But it was just, it was the overall, sort of rigour, the sort of intellectual rigour of it that, that impressed me. Clearly no, no hint of religious framework or ideology of any sort, you know, just, just a feeling that we ought to look at the best evidence available on any social issue and on trends and where they're taking us, and try and make the best of it, but don't be, don't be pre-committed, don't be prejudiced. Try to be open, in terms of the evidence. And it was that, that was the sort of, the flavour of those talks that impressed me very much at the time. 1959, I'm amazed to discover. [laughs]

*Was the... You say that there was a kind of, a presence which is the absence of religion, but, do you remember any direct discussion of science and religion in those lectures?*

Science and religion per se, no I don't think so actually. I don't think... I'm skimming through the notes actually, the best way of reflecting on what is in there, the references. It, the breadth of the, the breadth of the references and of the topics covered is very very impressive. No, I don't, I don't think in... I mean, in other places, particularly, I mentioned to you when we were having coffee, particularly the, the review that Medawar wrote on Pierre Teilhard de Chardin *Phenomenon of Man*, which in its day was hugely influential, I mean in there, Medawar came out very very, very strongly, very clearly in his, his dismissal, not only of what Teilhard de Chardin said but, but of the whole sort of religious approach to, you know, to knowledge and to determining the truth about social things and... So, that, that came out in that book. But no, not in the Reith Lectures.

[0:03:30]

*And do you remember... You mentioned when talking about Julian Huxley on The Brains Trust that religion was sometimes one of the topics discussed. Do you remember how, how he talked about that on The Brains Trust?*

How he talked about...?

*About science and religion.*

No, actually, interesting question, because, no, I don't remember any specific occasion when he talked about science and religion there. No, I... I mean I was always a bit puzzled by Huxley because, although everything he wrote and said was very rational, and was constantly pointing us towards scientific approaches, scientific evidence, nonetheless he did have his hankering. I think he wanted to, wanted to think there was more to be said than science has to say. And indeed he did introduce the, the Teilhard de Chardin book, *The Phenomenon of Man*. I'd love to have known what he felt years later about that, because, the book, indeed was roundly dismissed, even by some religious believers themselves, for what they saw as rather sloppy thinking, the vague sort of pantheism that infused the book. So I'd love to, I, I don't know why, I'd love to know why, why Huxley decided to endorse that book as he did. But there you are.

*It's just when we first talked about loss of Christian faith, you mentioned The Brains Trust as being, you know, one of the factors in that.*

Well, I may have, I may have got, not... I may have made a slightly unfortunate implication there, that, in the sense that, I, it wasn't that I heard any particular episode of *The Brains Trust* and heard a denunciation or whatever of, of Christianity; it was, it was imply the, you know, the pro-science perspectives that we got, particularly from, from Huxley, that impressed me. So I might have, I might have suggested there that, it was a direct conflict with Christianity which, I don't, I don't recall. So I might have got that slightly wrong.

*Nevertheless came then, yes.*

Memory playing tricks.

[0:06:00]

*Thank you. Of your PhD research, which was on the vitamin biotin, I've asked various questions about that, but when you were recalling it, I think I'm right, and this might be unfair but I think I'm right in not detecting a great deal of sort of, excitement at recalling your PhD research, which may reflect the levels of excitement you had at the time doing the research.*

Mm.

*So, are you able to say something about, I suppose, your levels of interest in the, the question of your research, and the level, your level of interest at the time in the sort of materials, the equipment, the, the cells, the yeast, the, the vitamins. So that really.*

Yes.

*Given that you go on to be someone who is enthusiastic about science and a populariser of science.*

Mm. Yes. Yes. This is probably related to the fact that, [laughs] temperamentally I'm... Some people sometimes describe themselves as easily bored; I wouldn't go that far, but I think I, I think I was always much, much more interested in reading and writing about research, and particularly things I and other people in the lab were doing, than actually doing it. And that was really related to the fact that at that stage the techniques were laborious. I mean typically I'd go in and, I think I've mentioned this before, a typical day, going in and, and preparing cultures of, of yeast, and growing this stuff in the incubator, and then, some time later analysing the cells to find out what had happened to various levels of enzymes. All that stuff, which now could be done very very quickly, I mean an undergraduate could do, some of this stuff that I would take a week over, an undergraduate can do it in a class in the afternoon. So, I think that was part of it. I did find it, you know, just very, well, not quite boring, but I, I always wanted to talk about it, I always wanted to read the latest paper in that field, things other people had been doing, and talk about it with my colleagues. But doing it was, it was a bit tedious really. That's probably what it was.

*Ah, so, the actual, the area of work was of interest to you?*

Oh yes, yes, oh yes, certainly, yes.

*Mm.*

Oh yes, absolutely. But, but it was, you know, you felt like you were sort of, going in, walking in the door of the lab, you felt you, everything was slowing down, you were walking more slowly, you were proceeding more slowly than, than you could by, by reading and talking about these things. Yes, I think, I think that's really what it was. I'm just, I was too impatient really.

*What was the...*

One reason why I thought I, probably, one reason [laughs], why I thought I could never become a, you know, a really top scientist, because I was, almost, almost easily bored, but certainly... And of course things would get better. I mean I was aware of this as well, thinking, well yes, you know, if I were to continue in science, and

running, if I was running a lab, if I could be catapulted into the future, and be running a lab, or a large research group, then I'd have other people to do the work, and I could sit there thinking [laughs], and reading and talking about ideas. So that thought occurred to me, very much so at that time, but, just at that moment, as a humble PhD student, I, I just found it, too, too, too slow.

[0:09:39]

*Thank you, that's good. Something you mention, you mention a visit to Israel. I wondered when and why that was, and sort of, a sort of broader question of, are there sort of significant experiences of travel which I think are absent from the recording?*

Mm. Israel. Well, I can't remember in what context I mentioned that, but, I... [pause] Yes, I mean I, I went, I went a number of times, I had friends in Israel, microbiologists, and I... But it was really in my, the years when I was on the European Federation for Biotechnology Task Group, to give it its full name, Task Group on Public Perceptions of Biotechnology, it was that, during the years when I was doing that and similar things that I went to Israel, took part in a number of symposiums on science and society issues. But, I mean I, I'm... Again, I inevitably remember weird things about religion. I remember, my very first visit, I was in Tel Aviv and I went into this, I went into this restaurant for lunch, and I looked at the menu, and, I said, 'Oh, I'll have the omelette,' to the waiter. He said, 'Oh you can't have the omelette. No, no.' So I said, 'But it's on, it's on the menu. Omelette.' He said, 'Ah, you want omelette? Come over here.' And he took me to the other side of the restaurant. You know what I'm going to say, don't you? [laughs] Half of the restaurant was kosher, the other half wasn't, and I was sitting, just a few yards away from where I was allowed to have an omelette. And that's a true story, and that may be trivial but it, it tells you something about, about belief, doesn't it, really. Extraordinary. And then of course the Shabbat lift in the hotel. This is all part of the mosaic, isn't it, of my perceptions of religion. In Israel you have these things called Shabbat... You go into a hotel, in the lift, and you will find that on Friday, on the Sabbath, the lifts should not be working, because, a lift being operated involves somebody doing some work, and you're not allowed to work. So they have a Shabbat lift which, if it's a ten-storey building, the Shabbat lift goes from floor to floor ten times, stopping each time. No lift attendant, nobody doing any work. And that's



called a Shabbat lift. Which to me just, is incredible. [laughs] So I learnt a lot of things of that sort, which, you may say this is a small change or triviality of religion, but, how people seriously make those judgements, I just do, I just do not understand at all. Mm. And then, the other big, major thing I remember was, my friend, whose name was Leshek Kohn, Alex in English, Kohn, spelt with a k, he was a microbiologist, and he, he said one day, 'Would you like to go to look at the Holocaust Museum?' We were in Rehovot. 'Would you like to go and see the Holocaust Museum?' And I said, 'Of course.' So we went after breakfast to the Holocaust Museum, which had all the history of the Holocaust. And then he said, 'Now, we'll go next,' after coffee we'll go to the Holocaust Museum at, somewhere else. So we did that too. And then lunch. And then the next Holocaust Museum. [laughs] And we spent, we actually found ourselves all day looking at Holocaust museums. And this impressed me because, I was thinking, why on earth does he want me to go to, I think five in one day, different Holocaust...? But then you, you reflect on it, and you realise that for him and his family, the impact of the Holocaust was so enormous that it's something that he, you know, would think about every day virtually, and he, there's a, there's an imperative I think on Jewish people in, in Israel, to, well not just in Israel, but to, to influence others, you know, to try and make them more, more aware of something like the, the Holocaust. And that's why he was doing this, although it seemed to me somewhat unreasonable, you know, somewhat over the top. but, I could see why, because of the enormity. I mean he had lost a number of family members in concentration camps and so on. So this was still for him, possibly one of the most important items, you know. However, these are the sorts of things I, I remember really about my visit, several visits to Israel. And the other one was, was... [pause] We stayed with Alex, Leshek Kohn and his family, and, we quickly became aware that, that they had put the radio on every hour, just to check that nothing had happened, you know? We also heard bombers going across in the night. It was a time when the Israeli air force was going up regularly towards Lebanon to, to drop a few bombs in the border area where there was some trouble going on, and they would just drop a few bombs and come back again. And that was, that happened every night. But listening to the, listening to the radio every hour with a sense of urgency was something that struck me as well. So you're living in a state constantly of, of, you know, preparedness or awareness of, of attacks or war breaking out or whatever. All that stuff impressed me much more than the, [laughs] the symposia I took part in on

science, on... It was, the meetings were on, on the impact of biotechnology, social impact of developments that were going on and so on. But this other stuff impressed me much more deeply.

[0:16:27]

*Thank you. Could you recall in as much detail as possible how and why it was that you set up the debate between John Habgood and Richard Dawkins at the Edinburgh Science Festival in 1992? And by why, I mean, why then and why those people, and how, you know, how it was actually achieved.*

Mm. [pause] Well I don't know that I've got a lot to say about this. I mean I knew Richard from, as a, a young contributor to *New Scientist* when he was working in Oxford and he, well we asked him to write for us. He wrote a number of articles, and, interesting stuff, and we were very happy with it, and... Then of course he... I mean he was terribly shy and reserved at that time, and I... But of course, over the years he became, you know, much more... I don't think he ever lost his shyness actually, but he certainly, I mean his public persona was, was not of a shy man, it was somebody who was very aggressive, and, that began to develop. So I was aware of that. I had met John Habgood when I went to interview him for *New Scientist*, which I think you know about. [pause] Did I mention his comment about walking around Cambridge?

*Yes.*

And people looking ugly. Yes. That was very influential on me. But, so, I met them both, and I was on the board of the Edinburgh Science Festival and the programme committee and I, I felt that, it would be useful to bring them together, and, you know, put them together and see what happens really. I don't think I had any great agenda. We didn't present, we didn't have a motion for the debate for example. I, I introduced him and said a few things about, you know, what is... do we have two different languages here, the scientific approach and the religious approach, religion being more, more akin to poetry if you like than factual writing and so on? A few things of that sort. And I just left them to it really, and, they made their own agenda. But... I mean have I told you what happened? Because, the audience clearly changed around from being very much pro Dawkins to being, and finding John Habgood rather

tiresome I think, it finished the other way round. Although we didn't take a vote, but it finished the other way round, because John Habgood is a very warm, empathetic sort of person, whereas Richard Dawkins just became [laughs] more and more angry as the, as the evening progressed. But, I, I don't, I mean I don't know whether anybody's minds were changed or not, or, if they hadn't been, they would have, I would have thought might have been changed in the direction of Habgood, because he was, although he, surprisingly, showed, indicated or suggested by his responses to questions that he hadn't really thought about this stuff very much, and he would say, 'Well now, that's interesting, mm,' like he was thinking about these questions for the first time, despite that I do think nonetheless that he probably won the argument, although we didn't take a vote. But, I'm sorry, I don't have a lot to say really about that, except, it was worth doing. I think we would, if we were to do it again, we'd have had a, we would have had a motion, we would have had a, a form of words that they could each have addressed, but we didn't do that.

*But you were the person on the programme board who decided to have this?*

Yes. that's right, yes, yes.

*And what was the response of other people on the programme board to the suggestion? I mean, it obviously happened, but what...*

Well I think most of them just went along with it really. I mean, Steven and Hilary Rose were on the board. Not, they weren't on the board, they were on the programme... There were two things I was a member of, the board and the programme committee, and Steven and Hilary were on the programme committee with me, and they, I don't think they wanted to see John Habgood on a platform at all [laughs], as you can imagine, they're both fairly irreligious people, and didn't really see the point of it. Equally, they weren't, I mean, interesting because they were not terribly happy with, with Richard Dawkins either. I think they felt he was, you know, he, he was a little, a little abrasive, and they were quite right about that. So... But, sorry, can't help you much with that. Most of the people just went along with it. Unfortunately, although it was a, it was called the Edinburgh Science Festival, the programme committee and the board were slightly odd in having those members who

were local councillors, Edinburgh councillors, and they had decided to have a festival analogous with the arts festival, and these people used to come along and, [laughs] to be quite honest rarely had anything very concrete to say. And then there were the other, other members, Steven and Hilary and myself, Harold Baum, the biochemist, and Heinz Wolff from Brunel. We were the outsiders, but we were the people who came with some, some sort of scientific credentials and some, some ideas and suggestions, and pretty well, the other people on the committee would say, 'Oh yes, let's do that.' [laughs] I'm being a little bit unfair, but not much.

[0:22:23]

*Inspired by reading a book called Science in Public by Jane Gregory and Steve Miller, they, they talk about the early Nineties, really this year in particular, 1992, as a time of a, of a certain kind of peak in public discussion about relations between science and religion, which is related, they argued, to the, to various things being sort of put together by the media, and one of those things is the announcement of the result of the NASA satellite Cosmic Background Explorer, which detects gravity waves, and its, one of its spokespeople talks about sort of, seeing God in the results and that sort of thing.*

Mm. Mm.

*Do you, do you look back on that year, the year in which you set up this debate, as one in which there was a kind of enhanced public discussion of these things, and, perhaps that even inspired you to, to have this debate at the Edinburgh Festival, or not?*

No. There was no connection really there at all. And, I'm not... [pause] I, I haven't read this, so I don't know, but I, I think that's people putting their own gloss on, on things that were happening. I don't really see that, certainly not as being a peak, in the sense that it, public interest has gone down again. I mean, this is of course, it is, it is associated with the, the rise in, in interest and activities in PUS, public understanding of science, which of course followed the Bodmer Report some years before, and the setting up of, of a number of activities there. And that, that was something that certainly did, did rise, you know, to a peak, and has waned somewhat

nowadays. I think... I mean I think there are scientists now who felt it was a bit of a waste of time really, initiatives under the PUS umbrella. But no, I, I can't really say anything about this specific point you make. I think, I think they're putting their own gloss on events really.

*Do you remember that, the results of that satellite?*

Well I remember it, but I don't, yes, but I don't have any insight or expert comment on it.

*And what... You've just mentioned there the, the view of some scientists of PUS; what's your view? You said that some scientists think that it's a waste of time.*

Mm.

*What is your view of that sort of field?*

[pause] Mm. [pause] I think, I mean looking back, it seems to me clear that the PUS was born at least in part of scientists, some scientists fearing that the public were, were becoming more, becoming hostile towards science and towards certain developments in science, the feeling that, you know, science is out of control, scientists are developing Frankenfoods, whatever it might be, and that we're helpless and we... So there was a, there was a... Scientists saw public hostility towards... But I think they always missed, missed the fact that, there was the other side too, there was also a public support for science. Some of the people certainly involved in COPUS, you know, were motivated by a defensive attitude that we've got to protect science and endorse it and, and sell science more, more strongly than had been done before, because the public don't like us any more. And, I mean yes, there have been these episodes, you know, GM food, MMR vaccine and so on. But, I think there's also public awareness that science is a good thing as well. I think it's always been a bit schizophrenic really. You know, when, when you have something like an AIDS, you know, the emergence of AIDS, people marching up and down the roads in Washington demanding more, more research on AIDS, you know. So I think there is an awareness that science has great achievements to its credit. I, I never went along

with the extreme view that, that the public is totally against us. I don't think that's ever been the case at all. I think we've still got an enormous job to do in, in school education to explain more clearly the basics of science and scientific method, and to, well, equip people to think, and I'll give you an example. I was talking to a lady last weekend who, whose husband was saying some very critical things about GM food, and I took something for her to, I said, 'I'll give you this to pass on to your husband,' something I had written about GM food, and the hysteria that developed. And she said, 'Oh well, me too.' I said, 'You don't like the idea of GM food?' 'Oh no no no no,' she said. And I said, 'Well tell me, just, why, what have you got against GM food?' She said, 'It's unnatural.' So, I said, 'And what sort of foods, fruit and vegetables, what sort of fruit and vegetables do you eat?' And she said, 'Oh everything I eat is natural.' I said, 'Well, I haven't seen your shopping list or your lunch table, but,' I said, 'I can guarantee that what you're telling me is absolutely wrong, that none of the fruits or vegetables that we eat, we buy, we eat, are natural. They're all the results of intensive breeding.' If you look at the natural, the relatives out there of strawberries in the field, they're weedy little things. [laughs] The Imperial – no, the Science Museum, once had an exhibition, side by side they had laid out the natural, like crab apples, more or less, the modern equivalent of, of wild, uncultivated apples, and they're tiny, they're mostly eaten by insects, they're a mess. Real apples are a delight, they're ten times bigger, because they're a result of, of increasingly intensive, increasingly science-based, breeding. And she looked up and she said, 'Oh, oh I didn't know, didn't, didn't know that.' Then she said, the next thing she said was, 'But of course GM is not organic, is it?' [laughs] So I had to start again, and say, these are not the same type of, these are not the same categories. You can have a GM or a non-GM plant that's grown either organically or non-organically. 'Oh,' she said. Now, I mean, it seems to me that, that, you know, something's gone wrong here back at school, that this woman didn't have even the basic sort of elements to help her to understand something as, fairly simple really as that, you know? So I think, that's, that's where I'd be looking for more activity and more, you know, more conscious proselytising on behalf of science and scientific method, rather than the, you know, activities for adults, which are important and we've done quite a few of those, and quite successfully, like the, the Birmingham genetic congress where we have the... [bleeping sound] Ooh. Is that you? Where we had these...

*That's not mine.*

No, it's all right, I'll... Where we had these public sessions every evening, which people absolutely loved, and evidence from there, people were learning stuff that they just simply didn't know about.

[0:30:38]

*Who... I was just going to, wanted to ask you, who were your, who were the sort of, the reader, who was the reader in mind for each of these? What kind of audience did you have in mind for each of these publications? I'm, I'm holding up Recombinant DNA- What's it All About? which was...*

That, that's quite specific. That was, at the time this was published, the, which is when, '87, this was a result of a specific request from somebody in the House of Commons who went to the Biochemical Society and said, you know, all this stuff that's going on about, about gene, genetic engineering as it was then called, and, recombinant DNA, it's all coming up, and we've got a lot of MPs who don't know anything it. Can you do us a?' So it was done specifically for MPs, to give them a briefing on what it was all about, something they could read in a space of half an hour or, well, maybe a bit more, but, they could read quickly and... So that's what that was for. This one was of course for the Congress of Genetics.

*And that's Genetics and the Understanding of Life, 1993.*

Yes. That's right. So this was handed out to, this was handed out to people attending the public sessions of this congress, which, I mean it was interesting congress. The International Congress of Genetics had always been just that, a scientific congress. But for the first time in Birmingham it was decided, because of the things we've been talking about, because of anxiety about public attitudes, that, it was decided to have a public programme. And, so every evening after the day's, you know, conventional scientific proceedings, every evening there was a public session on some aspect of genetics, to which enormous numbers of people came, and they were given this. I think it, I think it was, I think, the Genetical Society also, the UK Genetical Society, also sent it out to, I think to libraries or other... There was a, there was a, you know,

an ongoing distribution of this. Oh no, sorry, it was through the, the Reading, National Centre for Biotechnology Education, they, they distributed it around, I think around libraries. But its primary purpose was, people attending that congress. It's a, I mean it is a, I was saying earlier that, casting doubts on the example you give on here about a peak in public attitudes on activities, I think it's a pity that generally speaking, things that are tried like this, and they're considered to be successful, they don't always lead to a change in future. I mean the best example of that was, the other book... I've given you the REGEM booklet haven't I, release of genetically engineered organisms into the environment, it's that shape. No? I haven't given you that?

*No.*

Oh. Oh. I might have a copy of that, I'll go and see.

*OK.*

Well that was... I'll go and get it.

*OK.*

That, that was a...

*Just, the microphone...*

Ooh.

[pause in recording]

Yes, the booklet you've got there is another example of something I do feel quite strongly about in terms of activities for the public. A number of things have been done, like the Birmingham genetics public sessions, but also this, which was the, it was called REGEM 1. It, this is a summary which I wrote in 1988.



*Called, the title being...*

‘Engineered Organisms in the Environment’, which is about the issue, which was fairly new at that time, about the release into the environment of engineered organisms. Now, the same point is here, which is that, this was called the first.

*The First International Conference.*

It was hugely successful. It was similar to Birmingham in the sense that, it was a public, there were public sessions at this, essentially scientific meeting, as well as this booklet that I wrote. But it was called the first because it, because the whole question of releasing genetically engineered viruses and bacteria and so on into the environment for, mostly for agricultural purposes, was in the wind, and there was concern about it, and, you know, was it dangerous? So this meeting was convened, not just as a scientific meeting, but also as a public event. Very successful. But there was never a second or third or fourth. [laughs] This was intended, that’s why it says the first, it was intended to become a regular event at which public, you know, the public could be reassured and informed about what was going on and the fact that problems and possible hazards were being taken account of. So, there were not, at this meeting you had, not just genetic engineers who wanted to do... you had ecologists and people taking a much broader view of possible hazards. All of that was done within a public context, and I think very usefully so. Unfortunately, because it was so successful, everybody said, ‘Oh we’ve done a great job, bye bye.’ [laughs] And everybody went home and forgot about it. And there wasn’t a second or third or any, because they felt they’d done it. Well, that’s a pity. I think you do need this type of activity to continue. I, at the time of the, the consensus conference at Imperial College, do you remember the, there was a consensus, something called the National Consensus Conference on Biotechnology, held at Imperial College in London. I forget the year, but you could dig it out, I’m sure. It was called the UK Consensus Conference on Biotechnology. And it was, the motivation was the same as this, to talk about issues in a public format, concerns and worries and, possible dangers, and all the rest of it, to do with biotechnology generally. And, it worked very very well. But it, it was a one-off, you know. And what I suggested in a little talk I gave was that, that there might, it might be a good idea to convene some sort of committee,

some sort of national committee, some group that could have a continuing existence. It would be, the people on it would not be scientists, they'd be respected figures from the arts and media and so on, and they could be given things to look at, you know, issues to look at, you know. Let's have a look at the, the question of, of, oh, well, I mentioned before, does GM food pose any dangers, either by being eaten or by being cultivated? A committee like this continuing over the years could be given issues like this to keep a watching brief on, as well as, and/or addressing them at, the specific issues at the time and producing reports on them. I think that would be very useful to do, and, the people on that committee would, as I say, be well-known people who are prepared to give their time to that sort of thing, simply to look at, and maybe to summon, you know, experts to come and give evidence to them. I think that would be useful. But it's a great pity that, there were two or three examples here of public events, albeit very successful, were just, each, each one was a one-off.

[0:38:53]

*Do you know how it was that you were invited to, to write this one first, and then this came next, and then this one, how it was you came to be asked?*

I don't know. I mean, three independent things that were happening, roughly the same time, and people in, you know, the committees concerned knew me and... No, I don't...

*And do you remember your, your sort of, intended audience and aims in writing 'The Engineered Organisms in the Environment', what you were, what you were intending to do with that, or, what the, the conference wanted you to do with that?*

Well, yes, I mean this was held in Cardiff, and, it, it was, the committee. [laughs] I mean they decided, again, they thought we, we need to have this event, we need to involve the public, but of course they well recognised that this, this would be the public that reads about this when it's announced in newspapers or in local libraries or whatever, in Cardiff. And so, it's, it's, you know, it's limited in that sense. And therefore, that was why this was produced to distribute far more widely. And, simply promoted as, people might be reading about these things and reading about possible dangers or alleged dangers and they could find out more by reading a document of

this sort. It's rather like the European Federation Task Group that I've mentioned before, which, we produced briefing documents there, and they were produced on a much grander scale, on a European scale, but also different languages, so that you would do a report on some subject which would be ventilated at the conference. Most of the meetings in that case were held in Brussels. But, but the outcome would have wider circulation through, in this sort of form, copies would be made available to scientific societies in each, each... They were asked, 'Would you like a copy?' you know, and, in Italian or Spanish or whatever, German, so that these foreign language copies were done and distributed locally. So in that way we achieved a Europe-wide circulation of the findings and the evidence in there. But I mean, again, I'm, I'm now convincing myself what I said here is wrong, when I said it wasn't a peak. But I'm afraid, all of the, I'm actually now saying that this, this sort of stuff did reach a peak. You know, I'm not aware that this sort of thing goes on any more.

*So, this sort of work on public understanding, specifically of biology and microbiology as it affects humans, reached a peak at this time, you mean?*

I think, looking back I think it probably did, because, certainly the REGEM 1 intended absolutely clearly as the first of a series of meetings to very consciously involve the public. And it didn't happen. The first one was a great success and didn't happen thereafter. Birmingham, again this is a, an international meeting, but the, the object of doing this, the public programme, including the booklet, was that that would become a regular item for the international society, but it hasn't happened. There have been several more meetings since then and they've just gone back to being simply scientific meetings with no public element. That one's rather different, that was done for MPs, but... So that... But these two I think have the common, the common fault that they worked very well, not just the publications but the, the meetings themselves for the public, worked very well, but were not continued, were not built on.

*Do you have any sense of why they weren't? Do you have theories about...?*

Well it's partly money, I mean partly... It's just generally talking to people on these committees, they just felt, oh we've done that, you know. Yes, there was public

concern about, about genetic modification, of release of engineered organisms, yes there was a lot, but we've done it, we've dealt with it. [laughs] And we, and we don't want to spend money on it again. So I think that, that's really all it's all about. And of course, like lots of things in life, it depends on having the right people in the right place. People say, you know, on a committee, 'We must do this, this is important,' and other people on the committee will just sit there. So, it, it does rest on individual enthusiasms.

[0:43:55]

*And, before we finish, could I just ask you to say something about, sort of current activities, future plans, and also if you could link in to that an indication where someone listening to this recording in the future might look to find your archive, if you think there's going to be such a, a thing. I mean presumably, you have papers relating to your career. Have you had any thoughts about where they might go, sort of, in the future, as a public record?*

[laughs] To answer that first, no. [laughs] No. I mean, a lot of the stuff is in a filing cabinet through there, lots of different sections to it, and... But no, there is no, nothing planned of that sort. No, I just, I just would hope that someone... I, unfortunately, my age now, you're getting to the position where you don't know the key people any more. I mean I know Paul Nurse, who's president of the Royal Society, and Paul is, Paul is somebody who was quite involved in this for example.

*Genetics and the Understanding of Life.*

Yes. And you would hope that Paul might, you know, might sort of pick up this particular activity and make it run with the Royal Society, but it hasn't. I think it, I think it is because people feel, oh it's been done, and we don't need to do it again, we don't need any sort of continuing activity. I, I strongly believe we do, I strongly believe we need a, some sort of national monitoring body that can have public trust and can comment on issues and provide some sort of, you know, some sort of, what's the word? Well to provide reassurance where needed, or, or of course to, you know, wave the flag if there are genuine anxieties and worries about problems, or things that might go wrong. But I, I just, I think we're, yes, I think we've lost that. And I think

these, two or three of these examples, including the European one, I mean this European committee I mentioned, Task Group it was called, financed by the European Federation for Biotechnology, it was financed by the European Commission under what was then DG-XII, and they're not doing anything, just finished, it came to an end, partly because they felt it was a project which had run its course and they had done everything they set out to do, lots of meetings, lots of briefing documents, but also there was nobody there in the Commission to say, 'Oh no no no, we really must, we must do this again, we must continue it, set up a new structure.' It's down, it's down to people isn't it, really, people with the right knowledge and enthusiasm, the right antennae to see that, something needs doing. But, I'm contradicting myself now, what I said here, because, yes I think we have, we have seen a peak, maybe not for that reason but we've, we've seen a peak of that sort of activity.

*Yes, and, with regards to this book, I don't know that they were, I don't think they were arguing that this discussion peaked in 1992 and then has tailed off since, but just, this was a sort of, a recognisable peak, or a, a moment where this was...*

Yes. Yes right, yes. Yes, yes. Yes sure. Yes.

*And, I know that you are involved in book trading, but I don't know what else you do at the moment. So if you could just give us a sense of what you, what you do day to day at the present.*

Oh, well... The book, I mean the selling old, buying and selling old medical and scientific books, is quite a large chunk of what I do. I still write for the American Society for Microbiology, so write regularly for them. So, those are, those are my two main activities really.

*Thank you.*

[End of Track 13]

[Track 14]

*Could you add some details of, sort of public recognition and awards, rewards?*

Yes. Well, I mean my main one is my OBE, which I was given for contributions to science journalism. And, very pleased, delighted of course that one had been nominated. I'm still not entirely clear, it was one of the scientific societies that I had been a member of, been very active in, that nominated me, but I'm not actually sure which one. There's a slightly, a funny story about, about my OBE. I got a letter asking me about the, the day, you know, going to the Palace, and so I rang up somebody. I thought about it, and, I rang up somebody, and spoke to them, and said, I was very honoured indeed. 'Who will be taking the investiture on that particular day?' And they said, 'Well we're not sure at the moment. It might be Her Majesty, it might be Philip, it might be Prince Charles, it might be... We just don't know. But we'll let you know.' So, a few weeks later, [laughs] I got another call saying, 'Look I'm sorry, we...' I don't know who I was talking to, somebody in the honours committee. 'I'm sorry, we don't, we just don't know.' So I said, 'Well look, there is one... This may sound, I don't know, churlish or, there is one thing. I do not want... If it's Prince Charles, I'm not coming, because Prince Charles I believe has done irreparable harm to science, his attitude about GM in particular, about which he's deeply ignorant, but he's been very influential. And I, so for that reason...' 'Oh well, OK, well we quite understand that, but we, I'm afraid, it won't be possible within the timescale, it won't be possible to guarantee [laughs] that it's not going to be Prince Charles.' I said, 'OK, well what's the alternative then?' And they said, 'Oh well, you can have it presented by the lord lieutenant of your county,' the county, in my case Middlesex.' So... 'And we'll contact him.' So I got this call from the lord lieutenant of the county of Middlesex, and we looked at... And he said, 'Yes, I understand what you've said, and why you said that, and,' he said, 'we'd be happy...' He said, 'Unfortunately, we'd be happy to arrange the ceremony here,' I don't know where, somewhere in Uxbridge, 'but,' he said, 'unfortunately I'm going to be away for the next two months, and it'll get delayed into,' you know, into the summer, and so on. I said, 'Oh, right, OK, well...' He said, 'There is a third alternative.' And he said... I said, 'What's that?' He said, 'I just put it in a Jiffy bag.' [laughs] So I said, 'All right, I'll take, I'll take the Jiffy bag.' [laughs] So whenever people say to me, as they used to, you know, 'What was it like going to the Palace?' I have to tell them this story. And some people think it's very funny, other people think it's absolutely outrageous, how could you possibly not...? [laughs] So

that's that one. But in a way I'm actually even more proud of my, because I'm a Scotophile because of my Scottish music, I'm even more proud of my DSc in Edinburgh, which was for my, not the science journalism but for my role in, in ventilating controversies in science and, you know, a broader brief than just journalism. So, I, in a way, because I'm a Scotophile, I'm even more pleased with my DSc in Edinburgh than, than my OBE.

*Do you know more about the origins of the DSc? You say you don't know...*

Sorry?

*Do you know any more about the, the origins of the DSc than the OBE? You say you don't know who nominated you for the OBE, but would you know anything about what happened behind the scenes for that?*

I don't. I think... I've never asked him, but I think that Tam Dalyell, who was an old, is an old friend, and who wrote for me in *New Scientist* at my invitation, a column that went on for very very very many years, and, Tam was, had a role in the, some science, some committee they had in Edinburgh for quite a number of years, and I think it might have been Tam. But I've never asked him and he never told me. But, of course I also knew other people in Edinburgh, you know, political heads of departments in Edinburgh. But I, I mean, I don't know. [laughs] Sort of, slightly, I'm slightly, slightly feel I don't want to know really. But... [laughs] Anyway, it was a good day. And all my friends from the Science Festival came along.

[End of Track 14]

[End of Interview]