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Professor John Waterlow CMG FRCP FRS in interview with Dr Max Blythe
Oxford, 9 June 1997, Part One

MB Professor John Waterlow, you were born in London in June 1916. Perhaps we could start by taking in something of your family background because it's quite a substantial family background?

JW Well, my father's family came from the Low Countries. The earliest known ancestor is one Anthonie Waterloo, from Waterloo in fact, who was a friend of Rembrandt. And they came over here at the time of the persecution of the Huguenots in the seventeenth century, but the, the one who first came to notice really in this country was my great-grandfather. This was Sydney Waterlow, who started the well-known printing firm – Waterlow & Sons – which specialised in printing bank notes and postage stamps. In fact, it was a pioneer in colour printing. Old Sir Sydney was a Liberal philanthropist, a Member of Parliament, lord mayor of London. He put up a lot of working-class dwellings which you can still see – Waterlow Buildings – if you go out of London by, from Liverpool Street, and he donated his house and park, Waterlow Park in Highgate, to the London County Council instead of leaving it to us. His second son, George, was my grandfather. Very little is known about George. He seems to have been one of those people who believe themselves to be a financial genius when actually they're the opposite, and he had a very unsatisfactory life which ended by blowing out his brains in the Grand Hotel in Plymouth in 1926. I remember my father taking me to his funeral, but I never saw him alive. And … oh, the only thing I've been able to find out is a letter from my father in which he says 'My father, of course, was an unmitigated scoundrel,' which is a strange thing to say about one's father. My father himself was educated at Eton, where he was Newcastle Scholar, and Trinity, Cambridge, reading classics. And when he left Cambridge he went for a time to Germany and Russia to learn languages and then entered the diplomatic service where he was posted to Washington. But he disliked it so much that he resigned after two or three years, in 1902 I think, and returned to England. And about that time he married Alice Pollock, the daughter of Sir Frederick Pollock, a well-known jurist. That marriage didn't last; it was annulled in 1909 without any bad feelings on either side. And my father then began to live really a life of making his own way. He had a little private money and he was active writing reviews and essays and that kind of thing. He lived for a time at Rye with Alice where he got to know Henry James, and he recorded a number of conversations with Henry James in his diary. That diary is now in the Berg Collection of the New York Public Library. In about 1911 or so, he found that he couldn't go on living on those sort of earnings and he got a job with the University of Manchester to organise their extra-mural programme, and there he met my mother who came of, whose family lived in Manchester. Before coming to my mother, I'd like to say a few words about other members of my father's family if that's in order. Well my grandmother, Waterlow grandmother, belonged to a family called Beecham(?) which had immigrated to Australia in the late 1800s and moved from there to New Zealand. And Sir Harry Beecham(?), the head of it, was a well-known person who was a member of the

legislative assembly and a businessman and banker and that kind of thing. My grandmother, Charlotte, was his daughter. They came to live in Europe and she married my grandfather, the unsatisfactory one. Her family was quite a talented one. Charlotte's sister was Mary, who married a German count from Arnhem first and later Earl Russell, and wrote quite successful amusing novels under the pseudonym of Elizabeth. *Elizabeth and her German Garden* was the first of these.[1] Also, Catherine Mansfield was a cousin on that side of the family and my father knew her quite well. As regards my mother's family, her maiden name was Eckhard, and she … she belonged to a group of refugees from Germany who'd come over around and about the time of the 1848 revolution. And one of her cousins – or my grandmother's cousins rather – founded the engineering firm of Henry Simon Limited, which at that time was an extremely successful and prosperous firm. My mother inherited from that side of the family obviously a kind of steady German patience and also I think scientific ability. My grandmother, my maternal grandmother, was a very interesting, intelligent, active and highly cultivated person and they were, they were patrons of the Hallé Orchestra and close friends of CP Scott, the original editor of *The Guardian*, and so on. So I really got two distinctly different streams from my two sets of grandparents. My father, after marrying my mother in 1915, I think, in the beginning of the First World War was recalled to the Foreign Office. And he was then at the end of the war a member of the British delegation to the Versailles conference, where he was in charge of the economic activities I think of the civil occupation of the Rhineland. And he was there for about two years, met a great many interesting people, took a strong dislike to the politicians – particularly Wilson and Lloyd-George, who seemed to be completely unscrupulous. At the end of that time he was recalled to London and became head of the Far Eastern department of the Foreign Office. Then one day he had the misfortune, he was sitting in his club talking to a colleague and saying that in his opinion our policy over China was absolutely disastrous, and unfortunately the foreign secretary, Sir Austen Chamberlain, was sitting behind the pillar and heard this. So my father was then transferred from the Foreign Office to the diplomatic service, which were different in those days, and sent out as minister – nowadays it's an ambassador – to Bangkok.

MB That was in 1926?

JW That was in 1926, yes, exactly.

MB John, I'm going to just keep you at that point, in fact take you a little further back, because we haven't talked about your early life, and you'd be 10 by then. So I just want to keep you back a little. I also wanted to ask one more question about Mum. I think she had a fascinating university education and became botanically interested?

JW Well, my mother got, was at Somerville, Oxford, and got, read history and got a fourth because she claimed that her memory was very bad. But her real interest was in botany and flowers and she was a passionate gardener…

MB A complete woman of gardens.

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[1] Countess Mary Annette Russell, *Elizabeth and her German Garden*, London: Macmillan, 1898.

JW …to the end of her life. She was an individual and very intelligent, and in a way adventurous person. But there's a note in one of the diaries of Virginia Woolf of her coming to see my parents at the place Oare where we lived in Wiltshire. And of Marjorie she says 'a typical English *hausfrau* with two of the most disagreeable children in England' – that's me and my sister. So I've never been very keen on Virginia Woolf since I read that!

MB John, you had a sister one year older than you? That's right?

JW Yes.

MB And then one was kind of five or six years down the line?

JW Yes, that's correct, yes, yes.

MB Right. What kind of a family was it like to grow up in? I mean, was it, was it a friendly, was it very formal? What kind of a family atmosphere?

JW Well, it's difficult to recall that sort of thing after all this time. My elder sister and I did a great deal of things together. We had a governess at one time who was the youngest sister of Lytton Strachey. Our youngest sister, our own youngest sister being five years younger was in a sense rather out of it, but we, particularly after my father was sent abroad in 1926, we had holidays with our two grandmothers more or less alternately and we were very much together. I mean my letters of that time usually include my sister Judy and we did things together, all sorts of things, and we had a, I think we had a happy childhood.

MB Yes. Do you think that, was … was Mother the central figure at that time? I mean, Father must have been away quite a lot?

JW Yes. I think our mother was indeed the central figure.

MB She was a person you could get close to?

JW Oh yes. I mean, she taught us a good deal when we were very young before we began to have a governess or anything of that sort and before we started going to school.

MB And I think very early on you started to have an interest in Meccano and practical things, to demonstrate a lot of practical interests?

JW Yes. I was always interested in that.

MB And carpentry at about the age of eight?

JW Carpentry, yes. I still have some of the tools that I was given in those days and that would be more than seventy years ago.

MB You're still into carpentry?

JW Still into carpentry, yes.

MB John, you went to a fascinating school, first school. Was that Wilkinsons, or Wilkies(?), or…?

JW Well, the first school ever … you see, we were living in two places in the early 1920s. We had this place in the country, a former parsonage at a village called Oare, between Marlborough, south of Marlborough. And we also had I suppose rented a house in London when my father was in the Foreign Office, in Holland Park. And so we shuttled between these two places. The first school I remember ever going to was I suppose a nursery school in Campden Hill, just off Holland Park Avenue, where I made great friends with Andreas(?) Mayor whose father was a friend of mine and his sister, Teresa, who later married Victor Rothschild[2], and they were, they have been lifelong friends until they both died. Then I went to the school called Wilkies(?) in Orme Square which was quite good on the classics, and its claim to fame was that Max Beerbohm had been a scholar there, and that lasted until 1926. That was a day school. And my father was posted, as I have said, abroad and the London house was given up. And then I was sent to the prep school Summer Fields. This…

MB Here in Oxford?

JW In Oxford. This was a very starchy sort of conventional school run by a clergyman. I can't say I liked it very much, although I don't seem to have been all that unhappy. I think, in my letters I think I disguised what I felt. My mother's sister, Aunt Edith, who was a lecturer at the London School of Economics was my guardian, and used to come and visit us and take, visit me and take me out. She was a marvellous person. But the great thing about Summer Fields was it gave you a very good basic training in the classics, so that in 1929 I passed in first to the, that year's election at Eton. I don't know whether you…

MB John, I wanted just to talk about Summer Fields and that training. Did the work there, did you find the work absolutely, you know, to your liking – all the classics, the traditional education that you got there? I mean, did you thrive on it?

JW I didn't find it particularly difficult. I had a very good memory in those days, and I had no problem in memorising all the Greek prepositions and the irregular verbs and Latin and so on. I don't remember that, I would have liked to have had more mathematics, but as far as my letters go – and a few have been preserved – they all seem to be about things like football and boxing and suchlike.

MB You were really into sport at that stage? That was the start of…

JW I was quite keen. I was small and short-sighted and I think a bit shy, and I was determined not to suffer any disadvantage, you know, and to impose myself on these things…

MB You felt strongly...

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[2] 3rd Baron Rothschild.

JW …particularly in boxing.

MB So, you did a lot of boxing, you did a lot of sport, played some soccer?

JW Soccer, rugger and boxing were the things, yes. I wasn't any good at cricket. I'd no eye at all for the ball.

MB Yes, you discovered you were pretty short-sighted?

JW I was rather short-sighted.

MB Yes. And I think you said to me at one time when we were talking that that cut out the possibility of you developing natural history interests early on that might have developed?

JW Yes, I think, I think it did. I feel ashamed that I never learnt much about flowers from my mother. I never even saw the stars until I was about five and my short sight was discovered, and I suppose that has an effect on one. I never took very much interest in birds because I couldn't see them or recognise them when I was quite young.

MB John, we've got you to 1929 and this transfer to Eton and what were to be the golden years?

JW Well, they were golden years in a way. Again, from my letters from Eton I talk a lot about boxing, which I forced … at first I didn't much like and forced myself to do it because I felt it would be cowardice not to, and then I began to like it a lot. The Field Game, the Wall Game, fives, squash, carpentry I enjoyed very much, scouting. I said practically nothing in my letters about work and I can't see how there was much time to do any with all these things.

MB You were extremely efficient in terms of Greek and the classical studies you did.

JW Oh yes. I mean we did a great deal of Greek and Latin, and I have some of the examination papers which were set at various times and I would find it absolutely impossible to answer any of them now. No way could I have done it, could I do it. I think the teaching was very good. The maths teaching was good too, but I didn't go on long with, long enough with it. And then of course we had other subjects of a few hours a week – history, German, Spanish. I think it was a pretty good education really.

MB So you settled in there well, got established on the academic side, in-house also on the sporting front?

JW Yes. I was never much of an ordinary footballer, but the Wall Game as some may know is a very static game, which I liked. I'm no good at running about. And I became 'Keeper of College Wall', and in our year, the final year, it was the first time we beat the Oppidans – the College are the scholars and the Oppidans are the non-scholars – for goodness knows how long. I was quite interested in rowing. I got what

is called my upper boats and I would probably have been in the second eight at Henley if I'd persisted with it. But in my last summer half I thought I really wanted to have a nice quiet time and walk about and bicycle about and to hell with these sports. So, I did box for the school at one time.

MB John, I'm just taking in those early years at Eton before we get to the distinguished last … last years when you became captain of school and head of many parts of school life. Just taking in those early years, were there any special teachers who made an impact?

JW Well, my tutor – we all had private tutors as well as our house masters – my tutor was Richard Martineau(?), who had been a Fellow of Trinity, Cambridge and gone back to Eton, unmarried. And he was a fine man – gentle, quiet, a real scholar – and I think he gave us or he gave me a feeling for scholarship, particularly when we were reading quite difficult things like Plato and so on. I don't remember the other teachers very much. There were one or two science teachers who did a bit of biology whom I thought were very good. There was one called Gaddum. I don't know whether he was related to the famous pharmacologist Gaddum[3]. Another called Weatherall(?). But, you see, we often switched from one half to another. We changed, we changed the people we were up to, and so one … except for the classics – Martineau(?) took the sixth form in classics – we didn't really have all that much continuity. The headmaster was first of all, at that time was Cyril Alington who was, had been dean of Durham, and was a very religious, straight, sort of straight-jacketed kind of person. I remember him saying once in a sermon that Christianity is quite straightforward, it's only like keeping a straight bat at cricket, which seemed to me an absolutely ridiculous statement.

MB You weren't very religious as a, as a student?

JW Well, my father thought that it would, that I should be confirmed, purely, I think rather cynically, for worldly reasons. If you hadn't been confirmed and christened, you know, it might be held against you, so I was confirmed and I'd been told during the preparation for that that, you know, it altered one's whole life as it were. Well I didn't find that it made any difference. After that I didn't pay very much attention, I have to confess, to religion.

MB Your destiny seemed to lie in the direction of Cambridge and a classics degree.

JW Yes, well...

MB But it wasn't going to be.

JW What changed it was really… About halfway through my time there we had a lecture from Tubby Clayton, the founder of Toc H, and he … about the treatment of leprosy in West Africa. I found this so interesting I said 'Well that's what I'm going to do.' I didn't feel like becoming a classical academic in a university. I didn't feel like becoming a civil servant or a judge or a bishop or any of the, any of the

[3] John Henry Gaddum.

professions which the classics used to lead to in the old days. I didn't see what I was going to do. So when I, when I heard this lecture and it gave me the idea of doing medicine, you know, my problem was solved.

MB It just happened like that, John?

JW Just like that. And then I began to do a little biology at school, which I enjoyed... And I had got my classical, I'd got the Newcastle Scholarship which is the senior, most important classical scholarship. In fact my father and I were one of the very few couples where both father and son had had it. And I got a classical scholarship to Cambridge and then I changed to, and devoted my last half, that's to say my last term which was the autumn term of 1934, to science – a little physics and biology. My great regret is that I didn't have the time or the opportunity to learn much maths. After O-Level, I didn't do any more maths.

MB Yes, you had no opportunities... You went up to Cambridge – a classical scholar, but it was to change. And you went to Trinity?

JW Yes. I got a classical scholarship at Trinity in the autumn of ...'33 it must have been ... no, '34. Then ... and in the beginning of '35, my father was in Greece and I went out there for a long spell. I went out, left England in a little cargo boat from Liverpool in February I think, and it was incredibly rough. It was a coal-fired ship with two stokers, and one of them mutinied and refused to work and I was told to do his job, you know. You were just told and you had to do it. And I must say I really admire people who can cope with having to put coal into a wheelbarrow in the stoke-hold and wheel it along a narrow plank about ten inches wide, and then chuck it into the furnace with the ship going up and down and sideways, rolling sideways and so on. I mean it was a terrible kind of job, but of course that doesn't exist any more now. That was just an example of the way people were treated and indeed expected to be treated, nothing strange about it. And I had had a sort of interest in this kind of thing even when I was at school. I did feel, although I was happy at school and made enough friends and so on, I did feel it was a very artificial life. The clothes were entirely artificial; tail coat and top hat and so on and so forth. And we used to have several days leave at half-term and I sometimes, since my parents were abroad, used to go into London and live in the East End in seamen's hostels and in the crypt of St ... of the church in Trafalgar Square and so on. I wanted to see how people lived, not that one sees much in that way.

MB And you were strongly and emotionally tied to thoughts about inequalities, John, at that time?

JW Well, I was, I was rather. I remember Birley who was the history master at that time, Robert Birley, and when I was under him I wrote an essay on communism which he discussed with me in a very fair and nice way. I was very impressed by him, and I don't think I was the only one. One of the senior boys, who was in the sixth form when I first went there, when he left he went to America, joined an American trades union which was pretty tough going in those days, and I believe was killed in a, in a labour riot in San Francisco. I mean, all sorts of strange things happen to Etonians.

MB But there was a political feel, a strong political feel in gestation?

JW Yes.

MB And these were times of great inequalities?

JW But I don't think very, I don't think there were very many people who felt like that.

MB But you were, you [felt] strongly…

JW Well, I don't know. Yes I did.

MB And at Cambridge you were to take these feelings a good deal, a good deal further?

JW Yes. When I went to Cambridge, that was the time of course of the Spanish Civil War, and I became very friendly with John Cornford who went to Spain and was killed there, and others. I…

MB You were close to Cornford?

JW I was fairly close to Cornford.

MB That just must have been a great loss?

JW Well, he influenced me a good bit and I tried to join the International Brigade. I went to London and saw Harry Pollitt who was in charge of the British contingent. He said 'What do you do?' And I said 'Well, I'm a medical student.' And he said 'Well, eff off and get your medicine done.' So I never went to Spain. But at that time it was extremely difficult if you had your eyes open and had any sort of feelings not to become very left-wing. There were, it was the time of the…

MB The marches…

JW …massive unemployment and the hunger marches. You'd see these men coming down from the North. Small, hardly anyone over five foot, flat caps, pale faces. I mean it was very … it was a very difficult time and it seemed to us, some of us at any rate, that the government was doing absolutely nothing, and the Labour Party was useless because although Hitler was threatening, Mussolini was threatening they wouldn't rearm. And so the only solution was to join the Communist Party.

MB And you did?

JW Which I did.

MB Yes. For two years or so?

JW Yes, I was a member for about two years and, but when the Ribbentrop-Molotov pact came, that was the end for me, it was... Also I found it incredibly boring.

MB Yes. You said you gave some talks and lectures to kind of groups?

JW Yes, they told me... I mean, the sort of things one was told to do was to lecture to the Cambridge railway men on the Plekhanov, the Lenin-Plekhanov dispute, you know, which had all been published in those little left-wing *'Works of Lenin'* books. And this seemed to me absolutely ridiculous. And I'd read Marx's '[Das] Kapital', I didn't think that, I didn't understand it very well, I couldn't understand the Hegel philosophy. And the whole thing was all absolutely artificial.

MB You must have been surrounded by a range of communists though at Cambridge at that time?

JW Well, of course I knew all these people who later turned out to be crypto-communists – Burgess[4], I didn't know Maclean[5]...

MB Blunt?

JW Blunt[6], Leo Long(?), Michael Straight and so on. But of course by then, how can I say, in a sense it was part of their profession to be crypto and not to be known. One knew they were pink, and after the war I was questioned by MI5 about this period. I couldn't answer any of their questions then; who went to the meetings, where were they held and so on, except for one man, James Klugmann, who was an open communist and in fact was, joined the Army and was in intelligence in the Army. But the authorities knew all about him and they knew all about me.

MB They found you'd only done rather, done these rather footling things like lectures?

JW Yes well, they said 'Your later career has shown that you are no possible danger to security, so that's that.' And that was that. But I did know these other people and I must say I was very surprised when I, when it all came out. Not so much about Burgess because he was an unreliable character, but I was surprised by Blunt.

MB John, keeping you now in the Trinity years and the work, I think you told me at one time that you did about three hours a day and thrived on that, had a fairly good social life. Can we, can we get on to the work side now?

JW Yes. Well, my first year I had to catch up on those parts of the First MB which I hadn't done, which was...

MB Oh, so you were going to take four years instead of three?

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[4] Guy Burgess.
[5] Donald Maclean.
[6] Anthony Blunt.

JW I was taking four years, so it was botany and organic chemistry, chemistry, but that was all over after one year. Then it was the natural sciences Tripos part one, which took two years, in which I … did anatomy, physiology and pharmacology. And it wasn't very hard work. One had to go to a few lectures in the morning and a few practicals, but I did indeed have a rather active social life because the Cambridge Labour Party club was quite a good club. One met a lot of people. And my sister was at Newnham and I met a lot of girls and so on and so forth. So we had a, we had a good time.

MB Yes, you met a lot of girls. You said the girls were particularly glamorous in the 1930s?

JW Well, the girls were a very much higher standard than the men in general and many of them were very beautiful. There was Ann Stephen, the daughter of Karin and Adrian Stephen, who married the Nobel Prize winner Dick Synge[7] – a beautiful girl; Angela Ricardo, daughter of Sir Harry Ricardo, again, I mean a very high, a very high standard I thought; Tess Mayor who I mentioned before, who married Victor Rothschild, and so on. And then there were my friends from Eton who were at King's or Trinity, and we used to spend a good bit of time playing bridge.

MB And you still rowed?

JW No I gave up rowing after my first, first year.

MB Any boxing … continued?

JW No, I gave up all athletics completely.

MB That went.

JW That went in favour of politics really. But no, we had a good time and there were six of us. One of my friends had, wasn't living in college; he lived in a room in a house, no, lived in a little house in Little St Mary's Lane which runs down to the river, and six of us used to all gather there at lunchtime. My wife came and cooked our lunch, and we had a very nice time. Unfortunately of those six three were killed in the war, and that's one reason why I don't like going back to Cambridge all that much. I suppose through work I made great friends with Andrew Huxley, who needs no introduction. A very, very nice man and we've remained close friends ever since.

MB You did your physiology together?

JW Yes. I went on in my fourth year to do part two physiology, which we did together … which I enjoyed very much.

MB I think physiology was the, was the really bright aspect of Cambridge academic life for you?

[7] Dick Synge and Archer Martin won the Nobel Prize in Chemistry in 1952 for their invention of partition chromatography.

JW Yes, yes it was. The biochemistry of course was very famous and very active, under Sir Frederick Hopkins, and many people were very well-known … polymaths.

MB But that didn't grip you like the physiology?

JW It didn't, I think partly because of my rather poor grounding in ordinary chemistry and organic chemistry. And I've never been so much of a reductionist; I liked to know how the body as a whole worked. And my hero was Sir Joseph Barcroft, who was the professor at the beginning of my time. Adrian[8] was the professor at the end, during the part two, but I never got on very well with him.

MB Barcroft was okay though, wasn't he?

JW Barcroft was wonderful, yes.

MB Barcroft must have been a delight?

JW Barcroft was one of my heroes, still is. But there was, there was not very much contact. The medical students, you see, were the lowest of the low really. I mean, we were doing … what, an applied professional course, and we...

MB Mmm. So you got kind of short shrift from the, from the tutors?

JW Yes, we got short shrift really from the lecturers except two who were Americans, who were particularly interested in, both in us as medical students and as persons, and were decent fellows. I remember one was, one was Glen Millikan, the son of the physicist Millikan[9]. He used to lend us his car from time to time, which was quite a thing in those days to do. And the other was Don Barron who became professor at Yale in physiology. Both those…

MB They were visiting research fellows at the time?

JW Yes, exactly, and both those were extraordinarily nice and…

MB Great and kind?

JW Yes, kind and interested. Above all interested.

MB Millikan had a sad … sort of early death.

JW Yes, he died mountaineering. His wife, his wife Clare Mallory was the daughter of the Mallory[10] who was killed on Everest, so it was particularly sad for her. Now, I…

MB Just keeping to that physiology, John, I mean what were the things that you were doing in the lab, I mean that really turned you on at that time? Was this all kind of neurophysiology, smoke drums and muscle twitch work?

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[8] Edward Douglas Adrian.
[9] Robert Andrews Millikan.
[10] George Mallory.

JW Well, it was a bit of that, yes, and there was quite a bit of histology. And I don't remember being all that turned on by the practicals. And … I had of course a vague idea of becoming a neurologist or a neurophysiologist, which was obviously the way Andrew, my friend Andrew was going. When I'd finished the second year I'd got a first in part two, I went to see Adrian to ask his advice whether I should give up medicine and change over to physiology, because after all that was quite a respectable performance. I couldn't get any interest out of him. So I went on with medicine.

MB What, he was dry? He didn't warm to any discussion?

JW No, he didn't, he didn't warm to any discussion or seem to think he could help me at all or give me any useful advice. And I think that, a bit of that came through in his lectures. I don't remember really being all that enthusiastic. I think that, during that last year I mean politics loomed very large, the war was obviously coming. I mean, one didn't … I did my physiology, you had to do it, and I wanted to get a first or to get a good degree, but when you're looking ahead to see what's going to happen to you in a war you don't… I don't know, there's not much scope for becoming very enthusiastic.

MB I mean the clouds had started to move in, and you couldn't…

JW Clouds, yes, I mean very…

MB …you couldn't feel strongly about it? There were dark years ahead?

JW Indeed yes, and one didn't know what was going to happen and so on. So I suppose I might have got more out of the physiology than I did, but I just did it. It was all right.

MB John, I was going to ask, you've introduced your … your wife already, your wife-to-be already. You said she came and prepared lunches for you?

JW Yes.

MB How did you meet?

JW How we met … we met through a mutual friend called David Bosanquet(?), who had been at Winchester and was at Trinity and whom I knew, and she knew because her family had been friends of his family for quite a long time. And so I met her as an undergraduate.

MB She was Angela Gray?

JW Gray, yes. Her father … she came from an old Somerset family related to the Fieldings, to Henry Fielding. Her father was a mining engineer, a very interesting man who travelled all over the world in the course of his profession, and she had four brothers. So that was quite a family to marry into.

MB Yes. And what was she reading at Cambridge?

JW She was reading history.

MB Right. But there was a lot of artist in this, in this lady. Had that already started to emerge, this, the painting?

JW I don't think it had. No, I didn't realise it. She began to be active in painting after the war when we were in London.

MB Right. You decided that you would marry while … while you were at Cambridge. I mean, that was planned?

JW Yes. So we married just before, we married in the end of July 1939. We went on a honeymoon to France, and we had…

MB Not a good time.

JW …we had to cut it short and come straight back again, and that was that.

MB I was going to ask, before we left Cambridge, whether there were any parts of Cambridge life that we've neglected in our discussion. But there was one particular point that I'd like to come back to. You talked about Barcroft, a great hero. What was special about Barcroft?

JW Well, he had such a splendid integrated view. One of his mottoes was 'Every adaptation is an integration,' and what he was talking to us about was the adaptation of functions under different conditions, such as for example when the foetus is born it has to adapt to a different oxygen level and a different environment completely. How does it do it? Very interesting, very interesting. I've always remembered that. And his book *Some Features of the Architecture of Physiological Function*[11] is a wonderful book. I found it much more interesting than the books of people like Sherrington[12] who were studying the nervous system and so on.

MB I've got from what we've said John a feel that Cambridge was a, was a time of growing up quite fast politically in terms of concern, in a range of ways; that you worked quite hard as you saw that you needed to qualify well. But there was a balance, a good balance between social life, growing up, becoming politically mature and working, and that the strong drive of medicine was still there?

JW Yes, and of course there was a lot of fun at Cambridge. I've mentioned some of the very nice girls.

MB So, it was gloom and fun?

JW I don't think it was exactly gloom. I mean, I mean the work in a way seemed to be rather irrelevant if one was going to become a doctor.

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[11] Sir Joseph Barcroft, *Features in the architecture of physiological function*, Cambridge: Cambridge University Press, 1934.
[12] Sir Charles Scott Sherrington.

MB No, but I mean with the war slowly approaching there must have been a darker, a darker side to the mask … to the mask of it all.

JW Yes, yes, but of course it was also rather exciting.

MB And you'd got to move on to … to a medical school, and you chose The London.

JW I chose The London just to be different, because most of the intellectual medical students went to University College. And so I thought I'd do something [different]. And I also wanted to go back to my old patch from Eton days, the East End of London…

MB Whitechapel.

JW …which was very … Whitechapel, which was very interesting, because even in those days most of the inhabitants of Whitechapel were either Irish dockers or Jewish traders. And, no, it was a, it was a good environment and we lived, Angela and I, in Great Ormond Street. We had a little flat there, bicycled to work every day, and for the first part of the so-called phoney war it was, it was very good.

MB John, I'm going to wind down at this point for us to have a short coffee break and bring you back to look at the war years at medical school.

MB John, we were about to move to the London Hospital Medical College years, but over our coffee break we'd found out that there were a couple of things about Cambridge that we ought not to leave from the story before, before we go on.

JW Yes, I think in order to give you a sort of rounded picture, most of my friends were not scientists. Classics, history and so on, people I'd known at school, people I met through the political activities and so on. I used to go to the, at first at any rate, to the Trinity Classical Society which I enjoyed very much. Then there were people among the senior dons who'd been there in my father's time, friends of my father, whom I visited occasionally and they asked me to tea – George Trevelyan, George Moore, even Rutherford[13] whom my father had known in Manchester. I feel very proud to have met him. And I should mention two others who were important. My supervisor was Alan Hodgkin, a very nice man. I wrote him most laborious essays. Somehow or other though I wasn't, didn't become enthusiastic about becoming a neurophysiologist. I think by that time that sort of interest in pure science had passed. The other man who was important to me was HA Harris, professor of anatomy. Harris was the son of a Welsh miner, and that was one reason I was rather interested in him, because that was such a different background from most academics. And he was a brilliant teacher, and quite a … quite a difficult man in some ways. One winter vacation he took me on to do a little project which involved the histology of the brain of the mole to see if, because the mole was blind, something was different. And he

[13] Ernest Rutherford.

had a new anatomy building, and the windows were all steel windows and they didn't fit all that well, and blasts of air used to come in and blow my paraffin sections all round the place. And one day when he asked me 'How are you getting on?' I said, I mentioned this, and he was absolutely furious and wouldn't ever speak to me again because I criticised his wonderful new building. Oh yes, I had no idea that that... But he was, he was a very interesting man.

MB Dramatic teacher?

JW Yes, a good teacher. And he set out to shock people; he shocked the girls sometimes in his anatomy. But those are just one or two more reminiscences of Cambridge days.

MB Let's go to Whitechapel now. Let's take those war-time years as a, as a medical, as a clinical student, in.

JW Well as I said I went to Whitechapel because of my previous interest in that part of London and because everybody else seemed to be going to UCH or Barts – respectable hospitals let us say. And the first few months of the war we were all separated out, all us students, into different regional hospitals – the North-East Region I think ours was. And I was assigned with four or five others to the North Middlesex Hospital at Edmonton, which was a very long cycle ride from our home in Great Ormond Street, but I quite enjoyed it.

MB That was a massive place?

JW A massive, huge hospital. I suppose about eight hundred beds. It was run by a medical superintendent called Ivor Lewis, who also found time to do a great deal of surgery. When you look at the way hospitals are run nowadays it seems absolutely incredible that Lewis would teach us in out-patients, starting at eight in the morning and going on until, I don't know, five or six in the evening without any lunch. And if you said to him 'Sir, I would like to go and get some lunch, I'm hungry' he'd say 'Well, be back in ten minutes.' His operations covered an enormously wide field of surgery. I mean, I can remember a breast, a hip, a gall bladder and so on all in one list, and I remember one case particularly where I think he was one of the first persons to open the heart and get rid of a, of a pulmonary embolism. That was an extraordinary case. Shall I go on to tell you a little bit about it?

MB Oh, yes please John. Yes. That must have been one of the very early heart operations?

JW Yes, it was I think. And it was necessary that the patient should, the heart should stop beating before he could go in, and therefore technically the patient was dead for a short time. And the anaesthetist who was an Irishman, Irish Catholic, said 'Well in that case she must have the last rites.' And he sprinkled her with holy water, and she got aseptic mediastinitis, from which I'm glad to say she recovered, and that woman survived. The other thing I remember about her is that she had seventeen children. That was the sort of thing that happened in those days. A fat woman with seventeen children.

MB Was Lewis a good surgeon?

JW Oh, he was a wonderful surgeon, yes.

MB But he was superintendent, running a massive enterprise as well?

JW Yes, absolutely. I mean he would say to you 'If you want to see a good sarcoma of the thigh, there's one in the third bed on the left in such-and-such a ward.'

MB I mean, he really knew it.

JW The whole, the whole place, yes.

MB And didn't have too many senior staff supporting him?

JW Not very many that I knew. We were ... I was clerking to him, and I never came across, I don't think I came across any of the others.

MB John, because this was war time were you acting up as it were, doing more responsible things than you might normally as a medical student?

JW Not at that stage. A bit later I did. After about six months of that we went back to The London, it was still what they called the phoney war, and had some lectures – it was a very distinguished hospital in those days – from people like Turnbull[14] in pathology who was a Fellow of the Royal Society, Donald Hunter, also a Fellow, Russell Brain, William Evans, John Parkinson and so on.

MB That's really a line-up, isn't it?

JW It really was, it really was a line-up, but when the time came to do midwifery I was sent out with one other fellow to Mile End Hospital, Stepney. And that was the time when the blitz began, and I remember very well one, at five o'clock one afternoon the planes flying up the river, hundreds of them. And the medical superintendent sent for us and said 'Waterlow and Williams, the medical staff will go to the basement, you students will remain on the fifth floor with the pregnant women.' And we had, we had quite a bit of bombing. We had five bombs on the hospital that same evening. And the pregnant women, they popped their babies out like anything with no help from us! I formed the greatest respect for the mostly Irish nurses, and really we had an interesting time. No bomb actually came on to our ward, so we were alright, but I certainly didn't feel the medical staff had behaved very well.

MB John, how did that course go? Did you get a balance? You're talking about obstetrics; I've got a feeling that at one time you said you were rather short on the obstetrics and gynaecology side of it though?

JW Yes, I was. I mean, we didn't learn much. We learnt very little.

MB Short attachment and then moved on?

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[14] Hubert Maitland Turnbull.

JW There was very little teaching, very little sort of formal teaching. I suppose the staff was actually depleted considerably. And we … we moved on. For a time I was attached to the Poplar Docks, hospital in Poplar Docks, which was mainly casualty work.

MB And this was a time when you were acting up because of the war? Is that right?

JW Yes, but at that, at that time we had awfully little to do, because there wasn't all that much bombing and what there was didn't do all that much harm. And then I was sent to another small hospital called Aldersbrook, in Walthamstow, and there, stayed quite a long time. There I was almost a house surgeon. I mean, I used to do blood transfusions and set fractures and all sorts.

MB Anaesthetics, did you do anaesthetics?

JW Anaesthetics with a rag and bottle.

MB Were you just thrown into that without a lot of training? I mean, did that…?

JW We just had to do it. It just happened.

MB So patients were a bit at risk?

JW Well, I'm amazed that nothing went wrong. And there wasn't really any formal teaching there. There was a consultant who came occasionally, there was a registrar who was frequently drunk in the evenings, and there was a German house physician who'd come to England just about a week before the war. And he was a very nice man. He was interned for a time and then let out and put into this job, and I was amazed that when the East End was really being heavily bombed, none of the patients held it against him that he was German, which was good. I suppose they realised that he was a refugee. So, one can't say that … and things, subjects like eyes, ears, children, gynaecology – never learnt anything much about that.

MB Let me just concentrate and focus on the pae- … paediatrics you were really down on? I mean, there was, there was nothing?

JW Really down… Yes, I was really down on…

MB In view of what's to come, I'm just, I'm just emphasising that particular point.

JW Yes, I was very badly trained as a paediatrician. I must have had some training, but I can't remember anything about it.

MB It made no real impact?

JW No, it didn't. I mean, we … as I've said, particularly towards the end we were either working in surgery or doing nothing, I mean learning from the books, and I was

quite surprised when I passed the MBBS. I started to try to change to the MRCP, and fortunately that wasn't necessary, in my last year.

MB John, what I was trying or hoping to tease out was while you were doing this clinical training did the view of a clinical career emerge at any time? Did you feel you might do surgery? Was that a possibility at any time?

JW I can't remember feeling much about it. As soon as ... as soon as I got through, I think I volunteered ... I still remained a physiologist and I think I, I think I volunteered for the MRC [Medical Research Council] work on operational research with the Forces.

MB I think you also had an idea that at some stage you might want to volunteer for the Forces though? I think you had...

JW Well I did, yes...

MB This is 1942 we've arrived at.

JW We've arrived at '42. Well, towards the end of that period, I think ... soon after I qualified, I did volunteer to be parachuted into Greece and join the guerrillas there because I still remembered quite a lot of my Greek. They didn't, they didn't want me. And somehow or other ... I mean I was as it were regarded as a physiologist, having had, got my first in both parts, and I was bought, brought into this MRC operation. I wanted to be attached to the Tank Regiment, but that didn't come off. And so I was assigned to work with EA Carmichael – who was a neurophysiologist – and BS Platt at the National Hospital where they had a sort of little MRC unit, you could say, working for the Military Personnel Research...

MB So you went to Queen Square?

JW ...Research Committee. And so I went to Queen Square.

MB That was your first job effectively?

JW That was my first job, yes.

MB Now, what was the name of the committee? That was the Medical..?

JW Military ... no, it was the...

MB Military Personnel Research Committee?

JW ...Military Personnel Research Committee, I think.

MB And that had a wide brief, looking at physiological...?

JW That had a wide brief and it was beginning for the first time to do operational research in the field. That's what I wanted to do. But, to start with that didn't come off.

MB You got stuck with heat, heatstroke?

JW Yes, I was put to work in hot chambers on the effects of heat in fact. I mean, it was quite interesting, not thrilling. And the person in charge of us was BS Platt, who I must say a few words about, because he...

MB Ben Platt?

JW Ben Platt, who played an important part in my career. Now, just let's stop a minute. Have we covered everything that you wanted to know?

MB Yes, I think Ben, Ben Platt comes logically into our story at this point. You might also say a little bit about Carmichael in due course.

JW Well, I ... yes. These were the two people who were running this section at any rate of the ... under the Military Personnel Research Committee for the MRC. Carmichael was a regular neurophysiologist at Queen Square, a very nice man. I didn't really have very much contact with him. Platt was a peculiar person. He had originally done chemistry, qualified in chemistry in, I think, Liverpool, and he then took a medical degree. He tried to get his membership but didn't succeed in getting it first time off, and he went out to China to work in the Henry Lester Institute [of Medical Research] in Shanghai. There he did some interesting work, biochemical work on beriberi. I think he was the first to show raised levels of pyruvate in the blood in beriberi patients and he was quite well-known for this, and then of course in about '35 the Japanese invaded and he had to come back. I suppose because of this experience he was taken up by Sir Edward Mellanby, and he found work in the Colonial Office working on nutrition in the colonial empire, which had become an issue really for the first time. Apart from McCarrison's[15] work in India in the twenties, nobody had bothered much about nutrition in the colonies. There was a...

MB Why was that in gestation at that time, this strong interest at that time, in the mid-thirties, John?

JW It was partly Sir John Boyd-Orr in this country, and partly I think because reports were coming out from the colonies of diseases, for example kwashiorkor in the Gold Coast as described by Cicely Williams, pellagra and so on. There was a growing interest. And there was a Labour government at that time, JH Thomas was Secretary of State, so they set up a committee on nutrition in the colonial empire and Platt was made secretary of it. And he was also sent out, I suppose at the beginning of the war, to Africa to really, where he really did what one might call ... not exactly epidemiological but observational... He sat down in villages and looked at what people actually did and what they ate, you know, and he I think was one of the first to show that the enormous amount of time that women spent pounding maize, and all that kind of thing. He had a great interest in the sort of folklore, or the folk activities, involved in nutrition. That's not an interest that I've ever been able to share.

MB But he put in a lot of absolutely basic observation?

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[15] Sir Robert McCarrison.

JW Absolutely basic observations, which have been published. And I'm not sure exactly how his career developed, but I know when I, when I came to Queen Square in summer '42 he was around. I don't remember that he laid down exactly what we were supposed to do. There were three of us in that group – Joe Weiner, who later became an anthropologist at Oxford … Ladell, I've forgotten his Christian name, who was a water and electrolyte physiologist, and me who was the youngest of the lot … Bill Ladell it was. And, but we sort of started working on, in hot rooms with suits of various kinds. And then…

MB I mean, were you using volunteers or were you actually doing it?

JW Doing a good bit on ourselves. And then in the winter, around Christmas, Ladell, Bill Ladell and I were told that we were – that would be '42 – we had to go to the Middle East to look into the situation of heatstroke and heat exhaustion. And so, I think it must have been February that we set out in a troop ship, exciting experience, from Glasgow with millions of cargo boats and a big escort of destroyers, and we were dumped down in Freetown, landed in Freetown with about six other officers. The convoy went on round the Cape [of Good Hope] to the Middle East, and we hung around in Freetown. I'd never been, I'd never been to Africa before, so I found it most interesting. We were in a transit camp for a week or so. And then they came along. Everything was sort of organised, but you'd never know what was being organised or when it would come off.

MB You just hung about for a week or two, and they'd…?

JW We just hung about, and then they said, well they came along and said 'Well, be ready to leave tomorrow morning, get your kit ready,' and so on. So then the next thing was that they flew us to Accra in Ghana, the Gold Coast, another week there; then to Sekondi-Takoradi, another week there.

MB That really is jumping about a bit!

JW Yes it is. Then to Khartoum, that was a long one.

MB That was a long one, yes…

JW All this in DC3s. And then from Khartoum we went in a train down to the Aswan Dam, and then we went down the river in a boat, and then I think in another train till we arrived in Cairo. And we were passing all this time sort of playing bridge and that kind of thing, you know. And the people who'd gone all the way round by sea had long ago arrived by the time we reached Cairo!

MB And you were supposed to be urgently required? That was the message?

JW We were, we were urgently needed. And we sat around in Cairo for a while, no transport further on to Baghdad, and looked at the pyramids, all that kind of thing … and eventually… staying at the Indian Officers' Club. Eventually after about another week we did get a flight to Baghdad and then a train down to the Gulf to Shaiba, near Pastra. There there was a huge concentration of troops. They had

brought in, I mean this was the time when the Russians were expected to break through into the Caucasus and Northern Persia and take over the oil wells, and so they brought in enormous numbers of troops from the Middle East and from India. It was after [Field Marshall] Montgomery's victory at El Alamein, just after that.

MB And you were saying at one time, I think, probably … there was near to two million troops, it might have been?

JW That's what I believe it was, about two million people in this Persia-Iraq force as it was called, which was considered to be the arsehole of the world. And the, there was a camp outside Shaiba on a little elevation in the desert which had a perimeter of about eleven miles I believe. And we were assigned to the Sixty-Eighth British General Hospital – I still remember all this – and we had some patients in the Thirty-Second Combined General Hospital, and we worked very hard studying these patients. I won't say much about it except that we defined three different syndromes – heat exhaustion, which was loss of sodium and circulatory collapse; heat-stroke which was hyperpyrexia, dry skin, failure of sweating; and a sort of intermediate condition which was very common and less, and rather mild. And a lot of what we did has been completely forgotten and a lot of modern work really seems to ignore what we did then, but that doesn't matter. We had a lot of patients and quite a lot of deaths. I should think that I have seen more cases of hyperpyrexia than almost anyone else in this country now, in my time, because it's not all that common.

MB I mean, the heat stresses for the troops resulted in enormous morbidity and mortality.

JW Considerable casualties, yes, yes. The heat exhaustion type of thing with circulatory collapse is easily cured if you can give them salt and water, either by mouth or by vein, and the diagnostic criteria are quite clear. The hyperpyrexia with temperatures of about 107, we never found a cause for. It seemed most, very odd that most of these cases had been in transit from one place to another place and had gone to have a lie down after lunch and at teatime were found half-dead with this hyperpyrexia. And so it really seemed almost as if there was some psychological element of boredom or whatnot in it. People were rarely working hard, like signalmen laying lines in the open or people working in tank workshops, aircraft workshops. They were much less effected, provided they had enough salt and water to keep them sweating.

MB John, two questions that come out of that. I mean, did you publish on this, on this research when you came back?

JW Oh yes. We published two very detailed papers in *The Lancet*.[16]

MB So those were your early publications?

JW Those were my first publications, yes.

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[16] WSS Ladell, JC Waterlow, M Faulkner Hudson, 'Desert climate: physiological and clinical observations', *The Lancet*, 1944, 2, 491-97, 527-31.

MB And did the results actually affect the health of troops? You felt that you got a good, a good response to what you'd recommended?

JW Well, I can't really say what the, what the top brass in the medical services did. One of the things we showed was that the idea that you can protect yourself by wearing a tope and a back pad is absolute rubbish, because the heat radiating up to you from the sand is nearly as much as that radiating down straight from the sun. And the sand temperatures, I don't know, I forget what it was…

MB So you scotched that nonsense.

JW So we said… And in fact, I mean most of the soldiers didn't bother to wear these things. I suppose we helped to make it not a punishable offence that they... I mean, they were very ignorant. I remember I was waiting once in the, by the railway in Shaiba to get a train up to Baghdad. And I was out there in the open and a military policeman came along and said 'Get in that hut over there, you can't, you're not allowed to stand in the sun.' And I said 'F*** off. I know more about heatstroke than anyone else in this command and if I go in there, I'm going to die because there's no ventilation.' I don't know whether I can use that language…

MB Fascinating times though, John?

JW Very fascinating.

MB And a real adventure, I mean real overseas adventure?

JW Yes, it was. I was very lucky because I got a couple of weeks leave. And I went across the desert in an Iraqi truck – I hitch-hiked, because there was no way unless you were sort of on military business to get from one place to another, aircraft, no, there was no, there was no train – to meet a friend of mine who'd come out of the Italy Campaign, Sicily Campaign I think. And we spent a week together in Jerusalem, which was a great bonus really. Great bonus.

MB You came back to Queen Square after that?

JW Yes we came back.

MB And ended the war at Queen Square effectively?

JW Yes we came back towards the end of '43 … and, yes, ended the war at Queen, well spent the rest of the time at Queen Square, as far as I can remember, largely working on the question of cooling people in tanks and protecting them from poison gas and so on. Problems which came up again in the recent Gulf War, but the Army had forgotten all the solutions which we'd found. They, apparently the Ministry of Defence laid it down ten years ago that never again would the British Army fight in the desert! But that was, that time was very disturbed by bombing again; flying bombs and V2 rockets, and also by Home Guard service, so that, you know, one didn't get much sleep and I don't remember very much about that.

MB Had your family started to increase in size by then, John?

JW Yes. My first daughter was born in 1941. I was in England, that was before I went, just before I went away. And my two sons in '43 and '45, and I was, and I was away when the '43 one was born, the elder son was born. So I think that pretty well takes me up to the end of the war.

MB Yes, when Platt became even more influential?

JW Yes. I was very disappointed that I didn't succeed in playing any role in the Army after the invasion and so on. I mean, I was rather bellicose. I ... but if I hadn't been married and hadn't had this child – and we had problems, he had a pyloric stenosis – I think I probably would have thrown my weight about and...

MB You really pushed away at it.

JW ...pushed to get into the infantry or something of that sort as a regimental medical officer. But as it was, I mean, I stayed in this cushy job if you like, partly for family reasons, and...

MB And then at the end of the war, Platt started to decide your future, almost the beginning and the end?

JW Well, I suppose Platt had... Around that time, after the war, Edward Mellanby set him up with the Human Nutrition Research Unit at Mill Hill. And it didn't come into effect immediately, but I mean that became his base for the rest of his life. He also became professor at the London School of Hygiene and Tropical Medicine, but that was later.

MB The first professor of nutrition at London, is that right?

JW First professor of nutrition in London.

MB And he asked you to stay on with him? Was that how it happened?

JW I suppose he must have asked me to stay on. I do remember, I do... No, but I mean I wasn't just completely passive, because I remember at the end of the war discussing, you know, what was going to happen to us all after the war. And he said 'Well, I think after the war, when the war has finished, nutrition will be one of the most important problems.' He'd been over at that conference which they held in America for the setting up of the UN and the WHO and FAO [Food and Agriculture Organisation], and he knew a lot about the sort of politics of nutrition. I knew nothing about those things. But I could see that there was going to be a tremendous amount of starvation and semi-starvation both in Europe and in the third world because, like in the West Indies, a great deal of the food supplies on which they relied had been torpedoed and they were very short.

MB So he persuaded you to, I mean, you were well persuaded to come on board, I mean that really did grip you, that idea?

JW And so I... So I thought yes, I will do that. And then of course I had the very good fortune almost before the... Well, before the end of the Japanese war but after the end of the European war in about August '45 the Colonial Office, to which as I have said Platt was an advisor, wanted someone to go out and have a look at the children where there was such a high mortality rate. And so I was sent to do this. As I've said I knew nothing about paediatrics, but that didn't deter me really. And I went first to Trinidad for three months, then to Guiana for another two or three months and finally to Jamaica. And this of course was an experience which really directed me for the rest of my life, because ... I mean, there were so many of these children and they were so ill and many of them died, and they had, their characteristics had to be carefully defined. The local doctors really didn't understand at all and made diagnoses like 'puny from birth' or 'worms' or 'nephrosis' for the oedematous cases and so on.

MB But essentially you were looking at that kind of spectrum of marasmus to kwashiorkor?

JW Exactly, yes. And two, we had...

MB [Was] there was a lot of confusion?

JW A lot of confusion, though I did my best to define them and point out the differences. I was terribly impressed by these huge fatty livers. These babies, Platt had been out there during the war and called them 'sugar babies'. I called them 'fatty liver disease' because I thought this was what they were dying of, the livers were practically all fat, and I used...

MB You were amongst the first to really emphasise that, John?

JW I was probably the first to emphasise that. Cicely Williams in 1935 mentions that children had fatty liver,[17] but she didn't make all that much of it. I was not only the first to emphasise it, but I was the first to measure the fat. I did post-mortems, and I remember very well the, in those days there was virtually no refrigeration, and during a post-mortem on a child in Trinidad ... it took a little time anyway to get the permission for the post-mortem, and the next day I was crossing the hospital compound and I ran into the chief physician – an Irishman called Gillespie[18] - and I said 'Just have a look at this, will you?' And I showed him some red streaks up my arm into my axilla and glands there, and he said 'What have you been doing?' And I said 'Well, I was doing a post-mortem yesterday and I cut myself slightly.' And he said 'Well, you'd better come into hospital.' I said 'Well can I go back and fetch my stuff from my lodgings?' and he said 'No, you come in this minute, this very minute.' And he gave me penicillin, which was very scarce at that time, and I survived. I remember him coming along and saying 'It's a pity really, it's so, it's so impressive and interesting when a doctor dies of a post-mortem injury!' I thought then I was very glad not to have died!

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[17] Cicely Williams, 'A nutritional disease of childhood associated with maize diet', *Archives of diseases of childhood*, 1933.
[18] John Eustace O'Neill Gillespie.

MB John, in removing the livers from these children, you were actually looking at the fat content and extracting the fat?

JW I was taking pieces, taking pieces out of them, and I then, then I got round to... I had read of Sheila Sherlock's work on liver biopsies in cirrhotic livers and so on, I got a huge veterinary needle and started doing liver biopsies with great fear and trembling because I didn't realise ... well I mean I didn't know whether I wasn't going to cause bleeding or not. But actually if you do it ... Sheila Sherlock had told me that it would be quite illegitimate to do it on children. But I thought these babies were so ill and things were so, going so badly I must find out more about it, and I found that you must let your hands ride with the respiration you don't have to say 'Stop breathing.' I could do that, let the hands ride. I mean, I suppose it was partly because I was quite used to riding a horse, and it's the same sort of thing, that I had no problems and never have had.

MB And there began, I mean, a long, almost a lifetime's love of liver metabolism? Interest in livers?

JW For many years, yes.

MB Amazing, yes. And it started there, the kwashiorkor, the fatty liver?

JW Yes. I mean, it wasn't until I got back to England and started writing it up for my MD thesis that I realised, I looked at the literature and realised that this was Cicely Williams' kwashiorkor. But it was a very interesting time.

MB I mean, where you were coming in ... she'd described the symptoms, she'd put it on the map in an accurate way symptomatically, but you were coming in looking at the real metabolic end?

JW Well, in a very crude way. I mean, Cicely had done an excellent clinical description and she'd indicated implicitly that the problem was deficiency of protein, because the children had been on these low protein paps when superseded by a baby at the breast, and that the treatment was milk and so on. She didn't actually say this but it seemed very, a very natural thought to me. But I'd like to say a little more about the West Indies as I found it at that time. Shall I do that now?

MB Yes, I'm just going to ask you one question, and then ... just one other question. Did it grip you very early? Because you've had a lifelong love of the West Indies ever since that trip. Did you, were you quickly taken over by it as a, as a place where you wanted to spend time?

JW As far as concerns Jamaica, yes.

MB Right. You saw those hills, those wonderful mountains and it did grip you?

JW Well, I'll come on, I'll come to more about that. Shall I go on?

MB Yes please.

JW Well, as I've said I first went to Trinidad. The doctors there, the paediatricians, were very kind to me and let me work in their wards and gave me beds and so on, but I was very isolated as a young Englishman. There was a very strong colour feeling. I mean, no Trinidadians invited me to their homes or…

MB So racial tensions were…

JW Racial tensions were quite strong. The director of medical services was English I think, and invited me once or twice, but never with the coloured doctors. I thought this was terrible, after all they'd been trained in places like Edinburgh and Dublin and so on. And … and then of course in Trinidad there was also the tension between the Africans and the Indians, who are about equal proportions, and although I tried to go around and see as many places and doctors as possible I found it a very sad country. I didn't like it. Then I went to Guiana where the hospital was incredibly primitive. It was a wooden structure, very big. There was a very nice doctor in charge, I was again given beds and did my best. In all these places I was just living in digs, remember, and again it was a lonely life. But Georgetown in Guiana is a fascinating city all made of wood, the biggest wooden cathedral in the world I think, and the, they had a very well organised system of child clinics up and down the coast. I had a car, I think I had a driver, and I used to go to these places and talk to the nurses who were incredibly nice. They were so pleased that someone took an interest in them. And then I was asked by the governor to go and look into the nutritional state of the Acawoio Indians in the Upper Mazaruni Valley – I may have told you this.

MB You did at some other time, but I want it on the record now actually, John. That would be marvellous. It must have been an incredible experience?

JW Well, it was. The governors in those days of course were very powerful. They just had to say 'Do this' and somebody did it. And I went up there with the district commissioner, in a little tiny plane. We landed above the waterfalls in the Mazaruni and then went around by canoe or on foot. This district is right in the corner, it's west of the ranching district, it's on the corner between Venezuela, Brazil and Guiana and you can see the mountains of Roraima in the distance and so on. And we travelled around and looked at … I looked at all the natives that I could find, sitting in, travelling in canoes with the chief and his daughter usually sitting in the back, quite distant from the main rowers, treated with great honour. When we came to camp at night it was quite interesting. The chiefs would not eat with us, they considered that that would be embarrassing for us, nor would they eat with their own people. So they had, we had three layers of people. And they are, they were in those days completely primitive, I mean just wearing loincloths with spears and bows and arrows and so on. And the district commissioner – a man called Pemberty(?), very nice man – towards the end of our stay got the aboriginals together and said, through an interpreter, 'Well we're going to bring you a school and a dispensary and an agricultural officer. And we're going to do this, that and the other now the war is over.' And the chief sort of grunted and Pemberty(?) said to the interpreter 'What do they say?' and he said 'Chief say we've heard ducks fart before,' which seemed to me very good. But I, among other things there, while I was there, I was called to see a woman with vaginal bleeding. And I had to go in a canoe with one of the aboriginals … well, both of us paddling, but of course I'm paddling very feebly so this canoe

went round and round, quite a long way up the river and then a climb up about a thousand feet through the forest to this village. And there was this woman with vaginal bleeding in a hammock. And to do a vaginal examination on somebody in a hammock is a very difficult thing, you know. It sort of swings away from you. Anyway, there was nothing I could do about this bleeding. I realised this, and I felt, you know, that I don't know enough gynaecology. I mean, I know in England it would be operated on, but what can you do in a place like that? When I got back to Georgetown the governor sent for me, sent for my report which he wanted immediately and then said, read it with me sitting in front of him, and then said 'Waterlow, I want to appoint you director of aboriginal medical services.'

MB All you ever wanted, John!

JW Well, I was very flattered by this, and when I told my wife she was keen on it. And it would have been a most interesting job but I thought well, you know, in such a position almost everything depends upon childbirth and obstetrics, and if you get into difficulties and you can't deliver the baby alive or the mother, you'd really be in trouble. I mean, all the sort of skin things and other things and the malaria and suchlike – no there wasn't much malaria infection – I could cope with, but not that. And so I decided to turn it down. And the governor Sir Hugh Letham(?) came to England and chased me and sort of tried to get me to say yes, but I didn't and that was that. So that was one career wing(?) which went by the board.

MB The Jamaica days, the Jamaica days that you spent on that trip, I mean they were really influential times.

JW Yes, well in [Jamaica], after... I really enjoyed Guiana. Then I went to Jamaica and I absolutely fell in love with Jamaica. I had an, I had an old car which I'd hired, I was staying in quite a nice hotel for once where there were a few people around. Before that I'd always been in lodgings. And the work was very interesting and the paediatricians were very kind again. I was told later that they didn't take me seriously until they, until they saw me carrying bottles of urine with my own hands, from the wards across the street to the laboratory which was the other side of the main road. And I got through a lot of work in Jamaica, also visiting clinics and hospitals all over the island. There was a very high standard of doctors there.

MB John, in Trinidad and Jamaica, you saw a lot of, a lot of cases of children with kwashiorkor. That's what you were really doing there, really getting a lot of, a lot of material on this disease. That was the principal...

JW Yes, and getting the background ... from the, from the country clinics and so on. Getting as much...

MB Right. So you found out about the families and everything?

JW I didn't do much about the families. I saw them at the clinics; I looked at the post-mortem records and so on. But the other thing that happened... But I got enough material and enough biopsy material to sort of make me feel well, I think I can put this together, which I did in my thesis. But, the other thing that happened in

Jamaica was that the Irvine Commission[19] in the University of St Andrews had sent out a committee to explore the possibilities of establishing a university and a medical school. And I met, it was Christmas time and I was invited to a party with these people, and there were several West Indians on the commission or co-opted onto it. One was Sir Philip Sherlock, a historian who later became vice-chancellor of the university, one was Sir Hugh Springer. He wasn't, neither of them were knighted at that time. Springer was a trade, was a lawyer and advisor to trades unions in Barbados – he became the university registrar. They were such interesting, intellectual, well-educated people and I thought well, this is what is going to break down this awful racial problem which I've seen with my own eyes. And these are the people who are going to take the thing forward into the future. So I will go to this university when it gets started, this medical school.

MB You made that decision right…?

JW I made that decision…

MB …right there?

JW …right then in 1945. Then … I then went back to Platt and I was engaged in some perfectly futile experiments, partly which I devised myself, and which were really stupid.

MB These were kind of rat liver experiments?

JW Yes, to see what effect the rat, the fatty liver in the rat … to produce fatty liver in the rat and see what the effect of it was and how far it blocked the circulation through the liver and so on and so forth. Stupid sort of experiments. And experiments of the various toxins. The only thing that was any good at that time was Platt's suggestion to me, and the suggestion didn't come from him, that I should look into the Cartesian diver situation, which had been published during the war by Linderstrøm-Lang. He gave me the papers, and because he was interested in measuring oxygen uptake of single eggs and things like that, which is precisely what the diver had been constructed for. The, so that was the, that was the only good thing about it and I'll come back to that a little later. During that period from '46 to '50, I as I say wanted to get back to the West Indies, and when they began to start the medical school and applied, advertised for people to apply, I applied for the job of professor of physiology. And I didn't get it. I remember very well the interview in Senate House in the University of London with Adrian there and about ten other professors. And when I was asked 'Well, how would you organise the teaching?' I said 'Well, you know, it was pretty good at Cambridge when I was there, I think I would follow the same pattern.' Of course Adrian was very pleased, but the others thought this a hopeless answer, which indeed it was. I hadn't given any thought to teaching at all, so I didn't get the job and it was just as well I didn't really. And I went, a little later on I was sent … by Platt as one of the UK delegates to a conference, FAO conference in Brazil. And on the way back I got permission from the MRC to – the university was getting going at that time…

[19] Irvine Committee.

MB This was '49/'50 ish?

JW That's right, yes.

MB ...to visit Jamaica on my way back from Rio.

MB This was a kind of regional, FAO kind of...?

JW That's right, Latin American region, in Rio. And I stayed for three days [in Jamaica] with the principal, Sir Thomas Taylor, who was, had been scientific adviser to Mountbatten[20] in the Far East and was a very, very nice man, wise man. And I said I wanted to come back, I wanted to come here but I didn't get the job of professor of physiology. 'So, well that's no problem. We'll make you part-time lecturer in physiology and part-time MRC research worker – we'll share the payment.' And I said 'That sounds fine,' and that's what happened.

MB Let it be done as it were, and it all came to pass.

JW That exactly, that exactly came to pass, yes.

MB John, I just want to keep you to those Ben Platt years before we finally have that transfer to Jamaica that we've just, we've just seen in the offing. I'd like to just say that when that diver came on board and you started that work, eventually you did go, you did go to Copenhagen to see Lang. Is that right? And you did have a publication on the diver and made some rather exciting modifications to the diver?

JW Yes, well to return ... yes, I mean, to return to the diver question. I had a young assistant and first of all I had to build the apparatus which had to be very carefully temperature-controlled and so on and so forth. I had to learn to make the divers.

MB Yes, you've drawn, you've drawn one here for me.

JW Yes, I...

MB The capillary that sinks or...

JW And it has to be exactly the right weight. Every diver has to be calibrated. I had to make pipettes which would deliver, say, a quarter of a microlitre which weren't, didn't exist in those days commercially. I had to make something; we were weighing liver biopsies. So there was, there was quite a lot to do. And I had these, this paper by Linderstrøm-Lang was looking at it from a theoretical point of view – what would be the leakage rate, what would be the accuracy and so on – and there were some quite complicated equations he developed for, particularly for leakage. I simply measured, I measured these rates, and rates for accumulation of CO_2 and leakage through the oil seal and all that sort of thing. And the only thing I introduced was to coat the divers inside with silicon, which really was quite a new substance in those days and water repellent, made the most beautiful little drops in which you

[20] Earl Louis Mountbatten of Burma.

could... Linderstrøm-Lang had not considered the possibility of mixing things in a diver. With the silicon you could do this. So I wrote this up in a little … in a little paper and I went over to Copenhagen to see him and say 'Well, you know, do you think these results are any good?' I mean actually, the observed leakage rates agreed absolutely with the calculated ones and so on, and he was pleased. He was a very nice man.

MB He was director of the Carlsberg Institute?

JW Carlsberg … I'm not sure whether he was a Nobel Laureate or not, I think not, but he probably should have been. He was an extraordinarily nice man. Heavy smoker, cigar smoker and he died of carcinoma of the lung, I think. But he was awfully nice to me and I spent a week there, and he said 'Well you can publish this in our Proceedings – *Proceedings of the Carlsberg Laboratory*' – even though the work wasn't done there, which was a great honour for me. And after that I felt pretty good really, and I felt well equipped to start doing something on the kwashiorkor cases and so on.

MB And you saw in prospect an opportunity with this apparatus, the Cartesian diver as modified, the opportunity to look at enzymic reactions in the liver?

JW Yes, and the idea was in those days that protein deficiency, which as I've said I believed in and had been implied by Cicely Williams, would impair the action of many enzymes. And there was a sort of, quite a rash of experiments, rat stuff, in the United States on that particular subject, so I thought well this would, this would, you know, this suits me very well.

MB John, at that point, with you poised to go to a new appointment in Jamaica, the University of the West Indies, the new university, and armed with the diver that you've harboured…

JW But I had to go to The Gambia first.

MB Yes, but these issues I'm going to come back to because we're coming towards the end of this reel. These issues I'm going to come back to when we talk this afternoon, but for now we'll close down and take some lunch.

JW Yes, yes, fine.