Anthony Hodson

Interviewed by

Richard Sharpe

9th February 2022

Via Zoom

Welcome to the Archives of Information Technology, where we capture the past and inspire the future. It's Wednesday the 9th of February 2022, and we're in Zoomland. I'm Richard Sharpe, and I have been researching, writing about, covering one might say, the IT industry since the early 1970s, but that was long after our participant who is making his contribution to the Archives today entered the industry. Indeed, he was born at a very important time. He was born in 1937, and in that year people of very advanced technology were pondering two new publications that had come out a year before, one from the United States, from Bell Labs, and one from the United Kingdom. The United Kingdom publication was by Alan Turing, on computable numbers, where he proposed the idea of a computer which would go through a series of logical steps and follow an algorithm, and therefore have a conclusion. And of course, he used that theoretical work later on, as many others did, but he used it at Bletchley to help design the Bombe and the Colossus, and then many other machines, such as the NPL machine, National Physical Laboratory. On the other side of the Pond, on the other side of the Atlantic, was a man called Claude Shannon, another genius, who that year, in 1936, published a paper using Boolean algebra to show how circuits could be switched, and to take out redundancy in circuits. This was very important theoretical work for the telephone network, because he was working for Bell, AT&T. Both of these papers of course being the foundation of modern information technology, were before the digitisation of computing, and the digitisation of telecommunications.
[02:04]
So, in this important year, 1937, Anthony Edward Hodson, you were born, and born in Paddington in London.

Indeed I was, yes.

And what was the, what were the parts that your parents played? Obviously your mother played an important part of it, but, what was your father doing?

My father at the time, this was 1937, and he was on the National Economic Council as a distinguished young economist, and he was also editor of the *Round Table* which was the magazine associated with a number of people who were very concerned with the development of the quote 'Empire' unquote.

And what type of economist would you take him to be? Can you give him a label? Was he a Keynesian, or not?

He was indeed Keynesian. He was, yes, a, a student of Keynes. He was somebody who, who didn't really like carrying labels. So, I think that he, he would have done his own thinking. I don't know whether he was a, a very very good economist, since I am not an economist myself, but he wrote a number of books on economics, of which the latest is called *The Diseconomics of Growth*, which, as you can see, was, was intended to be something that perhaps put the, the cat among the pigeons. Although I don't know that it did. But of course there's, there's lots of truth in it, and he was always looking at new insights to things. He was a very intelligent man.

And your mother was a charity worker, as you describe her.

Well I don't know that she was at the time, because, in those days, well first of all she lived in a, in a small house, and she had, by the time I arrived, two small children to look after, and in those days people of the, of the sort of senior professional class would tend to have, have staff and things, and, and have a home to run. I think she was, she was actually, though, a very social person, she was, she was a, really a brilliant socialite, a person of huge charm, and I think she would have been very interested in, in helping my father with his social engagements. But I don't think she was working then as a charity worker, although she did at many other times, particularly nursing and later in the Chelsea and Westminster Hospital of which she was Chairman of the League of Friends for many years.

[04:56]
What do you think you got from your parents?

[pause] [laughs] Everything I think is, is probably the short answer. Well I think my, my father of course was a highly intelligent person, and he gave rise to four sons, all of whom got Eton scholarships, of which I was number two, which was just as well because he was not particularly good at making lots of money. And so, if we had not got scholarships, that would have been out of the, out of question. He was a professional man. My mother was also highly intelligent but in a completely different

way, and, I think that, well, if I said she was beautiful, that's not a characteristic that I can see myself having, having been blessed with, but there we have it. So they were two remarkable people, very different people. They were very much a pair, and I think that I, I got some characteristics from both of them, including I think a certain amount of intelligence. And I was much influenced by the way of the life that they had, which was actually a bit restive. They didn't stay in one place for any long time until much, much later in their life. So that meant that as a child I was, I and my elder brother were rather tagging along there, and hopefully being looked after sufficiently, and we were, but we were so much rolling stones that probably both of us were deprived of some of the social discourse that children at that age, at a young age, get through mixing with the same friends day after day. So we both I think, my elder brother and I, tend to be loners a bit, although very much interested in, interested in, in, outward-looking. We're both, we were both of us, a bit extrovert.

[07:32]
Two other boys came along, is that right?

Yes indeed. My younger brother, Daniel, was born seven years later, just towards the end of the war, and he was a, or is, a high-powered financier, banker, financier, and he is involved with all sorts of things. My youngest brother came along when I was eighteen. He was christened the day before I joined Her Majesty's Navy to do National Service. And he has picked up from my grandfather the skill of languages, became a brilliant linguist, and was on German television among other things, and CNN for a long time.

[08:27]
Did you get on together, your brothers?

Yes, indeed. We have a pact to love each other. We've… My elder brother unfortunately died a few years ago, but we have always tried to be close, and have succeeded. We are great friends, even though we are very very different in the directions in which we went in life.

So although your family was a bit peripatetic, moving around, your actual family itself, as a social structure, was very stable?

Yes, I think that's true. Although you have to realise that my younger siblings were much, much younger than me. Daniel, seven years, seven years my junior, didn't become a human being until, at least twelve or even longer years afterwards, and of course my, my kid brother was really a generation behind.

[09:30]
Do you remember the war?

I do indeed, yes, I have quite a lot of memories of the war. I, I think that, my very first memory actually was staying at my godmother's house. My godmother, when the war came, decided that, that London was no place for small children, and so invited my father and mother and two, their two young, to her house. And there one of my earliest memories is seeing their elder son, John, who showed me his rifle, which I was very impressed with, and being somebody who was always interested in, in things mechanical. So I remember that. It was most unfortunate that he himself was actually killed during the war, as was his very distinguished father, Lionel Hitchens, in the early stages of the war by a bomb. But he was born, I think in the D-Day Landings, or something, at that sort of time. But, I also remember, well what, the next real memories were when my father went out to India to, to be Reforms Commissioner to the Viceroy, and, oh that was a, a very interesting time. A life of its own, and I have many memories of that. But for various reasons that turned out to be undermined by Whitehall, and after eighteen months he decided that he was wasting his time so we, we came back to live in London. And, although we lived in the West End, there was always some danger of being bombed, which I didn't really pick up as a fear, and, there were, of course, many many air raids that we went down to the cellar to last out for, and that was, that was fine. Yes, I have a lot of memories.

I suppose as a young child, you didn't miss things, because you hadn't had them. Rationing meant you didn't have them. But you, you didn't miss them because you hadn't had them before.

I don't remember being, being starved in any way, although I do remember that we, there were some odd things that we did eat, like whale and things like, and things like that. I also remember though, I suppose, one of the earliest memories was being ill quite a lot of the time. I think people don't realise, you know, just how much medical science has kept people generally, day by day, well, until of course we have something like what's happening at the moment. But even so, you know, people I think on the whole are, are a lot weller than they, than they were then.

[12:42]
You went to a private prep school. Did you enjoy that?

[pause] I think, I did, I did enjoy it. For the reason I mentioned earlier about being a bit of a longer, I don't think I, I fitted in quite as well as other people, but, I was actually successful at it, academically successful, musically successful. We had a great annual Shakespeare play that we, that we acted in the, in the wonderful outdoor theatre that the school had, and that was a, that was a success. I was not a, never a good actor, but I did take interesting parts like Feste the jester. So I think the answer is, yes, yes on the whole I, I did, but I am, I think it was a, a somewhat, slightly flawed school in the sense that, for example, it had no idea of science. Science was not a topic that, that came in at all, except perhaps for biology. I remember when the school was evacuated up to Scotland, there was a lovely young lady called Miss Campbell who taught us how to, how to keep caterpillars.

[14:16]
You went on to Eton College, and you got a scholarship there, as did your four brothers. What was that like?

Going in as a, as an ex, a rather cosseted boy, into Eton, was a terrific shock. It was a shock in, in several ways. Academically it was a shock because… I was actually very interested in science and mathematics and things, and that was my strong point. Although I was quite good at Latin and Greek, and, didn't do too badly at that, the standard that was demanded, because the Latin and Greek were very much the core subject, was actually extremely uncomfortable. When I… It was a miserable first couple of terms at, when I went to Eton. It was also, as I say, a completely new one

was struggling to just come to terms with, for example, having to organise oneself, rather than having everything organised for you. But in fact, the, the classical side was actually resolved, because I got demoted from the top class where it was presumed all scholars would be happy, to another class which was run by a wonderful man, the new class, called Reggie Colquhoun. And, we were doing *The Odyssey* in Greek, and it was Book 6 which is Nausicaä, and where Odysseus gets washed up and rescued by Nausicaä, who is a beautiful local princess. And I fell in love with Nausicaä right away, and I think felt a bit like Odysseus, very much washed up. And so after that, it was fine, and my mathematics and science were absolutely great, and music became also an extremely strong part of my life. There's just one other thing about music though. The youngest boys at, in college, were the only ones who had unbroken voices in college chapel, and as a, as a singer, I was drafted into the auxiliary choir, which helped the professional men singing, and boys, they had, there was a, a choir school at the time, sing in the English choral tradition. And that was an absolutely lasting engagement with, with me for, for the musical tradition of this country. So that was a, a wonderful thing about those early days, although I probably didn't appreciate it until a few years later.

[17:39]
You see the connection between mathematics and music?

[laughs] I am sure that… Yes, I, I think there is that. It's difficult to see, pin down why on earth that, that should be the case. I think that, perhaps music requires an idea of how to look at abstract things, and music, mathematics and music share that, although I think that the abstraction was, is quite different, but perhaps there's, there's some resonance between the two in the very complicated brain that we all have.

I've seen, I thought, I see the connection particularly between Bach and mathematics. There you go. Were you good at sports?

[hesitates] No, not really. I was a, I was a very keen swimmer at my prep school, but apart from that, I, I didn't really engage in sports with any, with any great skill. No, and have never been particularly interested in it.

[18:54]
You were five years at Eton. And then you did your National Service, in the Navy you said. Tell me about that.

Yes indeed. Well I was evidently not the sort of person who would immediately get sucked up as a potential officer. So I spent the first two-thirds of, of my Navy career on the, on the lower deck, being ultimately promoted to Upper Yardman, and failing the officer's examination at the end of the Upper Yardman's course. So in fact I spent all of my time on the lower deck, which was most interesting. I regard that as, socially just as important as any other learning phase of my life. I was also involved with various other things. For example, I got drafted on to a ship called *HMS Diana,* and *HMS Diana* was involved with the 1956 Montebello atom tests. And I got myself hooked into the, the scientific team, and played a small part in the instrumentation of the, recording what was happening on, with the atomic bomb explosions, for which we were a considerable distance away.

Yes, I hope you were.

Well, indeed. And the precautions were extremely good. There was a, we were very very well-briefed. But I am the only person perhaps who you will ever come upon who has voluntarily walked out into a fallout cloud.

Oh.

And this came about because the, when we were looking for the fallout cloud on, for the second explosion, the meteorologist couldn't find it. And so by the time we had found it, the, the instruments which were due to record what we were finding in the fallout cloud had run their course. And so somebody volunteered to go and reset the instrument, and as I had been working with, with those instruments for some time, I went out into the fallout cloud, reset them on the upper deck, and came back again. This was, I was thoroughly decontaminated, so there was no issue there. But this is I think perhaps one of the earliest significant things perhaps that I contributed to the world at large. And I note that the consequences of those tests are still used in British warships today, probably elsewhere as well.

[22:00]
So, you've been to Eton. This denotes privilege. You've been in the Navy, in the lower deck, probably an experience rather like Eton, I would suggest, but there's no need to go there. And then you go to Oxford, and of all places, you go to Balliol.

[laughs] Yes.

Which has a particular reputation. Can you tell us please what you consider to be the reputation of Balliol.

[pause] Yes. It's… I think I would find it very difficult to pin down, because there were so many people who were so very very different there, but it was, it was a place where you could talk at length with anybody about more or less any subject. And, I remember, I, I came from a sort of, general political centre background, but one of my closest friends was the son of the very very left-wing MP for Slough, and we, we used to discuss things endlessly, and, with, with some pleasure I may say, even though our political viewpoints were incredibly different. That was, Julian… It'll come. He was a, he was also a musician by the way, so that that was a bond between us. I made some very very close friends, including a man who was a, a classicist, Stonyhurst educated, who, who taught me a heck of a lot of things about religion, about art, listening to music, and so on and so forth. So, I had him as a, as a mentor. Being in Balliol, where, as I say, one could talk to anybody about anything, the, I think the, this, the level of scholarship was, was pretty good at Balliol as well. So it was generally, very much a broadening experience, although I suppose you might say that I, I was mostly concerned with my musical and my academic life which led ultimately to a First Class Honours degree in maths.

[24:40]
You are not interested in politics particularly, otherwise by now you could have been Prime Minister.

[laughs] I never…

Eton and Balliol.

[laughs] Ah well, perhaps, but no, I, I… I've followed in my father's footsteps of, of being a, a professional by, and perhaps a, a slightly academic professional, and I think that that sort of person doesn't tend to go to, go into the top of politics. And it's interesting that, although there were one or two exceptions, Eton scholars tend to be slightly of that make, not over-egged with, with privilege, doing professional things quite un-self-consciously.

[25:35]
In 1960 you joined Elliott Flight Automation. In 1960 there were 5,500 computers in the world, implementing Alan Turing's idea from 1936, and one of them, which was implemented that year and launched, was by a relatively new company in Maynard, Massachusetts, called Digital Equipment Corporation, the DEC 1. Did you find Elliott, or did Elliott find you?

[pause] I think they found me. It was a bit of a surprise to find myself going into that, into that direction. One of the things that I was clear about was that I didn't want to go into a, into a company like IBM and find myself as a programmer for the rest of my life, although that of course would have been a, just perceptions and the, ignorant about what was, what was going on. I remember actually attempting to get into NPL, and NPL, as you probably know, was, had a, a major unit which was concerned with automata, and I picked up a book called *Automata Studies*, which was, it was edited by McCarthy and Shannon, and Turing was very much involved with that. And so I, I thought that this is what I really wanted to do. I was, by the way, propelled out of academe, because, I was by that time engaged to be married to my wife of nearly 61 years now, and she decided that she didn't really want to be married to an academic, which I could easily have become. And so, that meant that I was propelled into looking for a, quote, 'real job'. But, in fact, I was very interested in, in joining NPL, because, they were in automatas, and, and that sort of thing, and I thought that was very exciting. But…

Is it the same Shannon who edited that book…

Yes.

…as Claude Shannon?

Yes. Indeed was Claude Shannon. It was Claude Shannon.

And there's a very good video which you can find of a, of an automata that he built out of switches, from exchanges. Have you seen that video?

I don't think I have.

It's very good.

But I, I think I'll…

Very very good. Make a note of that, and have a look at it.
[28:19]
Now, you went to work in Borehamwood, in Elliott. Now, Elliott was part of Elliott Brothers, a company no longer with us unfortunately. Could you give us, please, Anthony, a view of Elliott at that time, and what its culture was?

Very interesting. Well, first of all I found myself in Inertial Navigation Division, which was concerned with, with very accurate instruments of navigation. And, they were always looking out for new things that were going on. Although at that time, things like computers were pretty primitive. There was an 803 which I used quite a lot, Elliott 803, which was about as, this is quite a, a big room that I am in, and it was about, nearly as long as that. And it ran on, every time you used it, you ran a large reel of five-hole paper tape. One interesting thing about the culture of that was that, about the only women that were to be seen were those people who looked after the running of those Elliott 803 computers, and they were very fierce, and they were very frightening to young people like myself when you broke the five-hole paper tape, which was extremely easy to do. So there were no women. There was a, a lot going on in the labs, and in that case it was mostly analogue stuff, wheels and, and servos and things. And it was really very exciting, I found it a very exciting place to, to

work. Although they had no idea what a mathematician would actually do for them, but in the event I was well-embraced by them, and did very well if not too well. But just to show the esteem with which they regarded mathematicians, they bought me a calculator, and this was a top-of-the-market calculator. They assumed that mathematicians needed calculators. And this calculator was electrically driven. It did addition and subtraction and multiplication and, and division, and they cost £700. Now, £700 in 1960 was actually quite a lot of money by today's standards. And of course that, that technology has completely disappeared, it did, very very soon did.

[31:27]
You mentioned the 803. Elliott was, seemed to be an engineering and technology driven company, and Simon Lavington, in his very good book Early English Computers, says of the 803, 'It was a transistorised machine that was in many ways a forerunner of the modern minicomputer.' The 802 was developed for customers in about 1958; you were dealing with the next model, the 803. The American PDP-8 manufactured by Digital Equipment Corporation is generally regarded as the first widely used minicomputer proper in Britain. The PDP-8s began to arrive in about 1965, and it was not until 1969 that a number of PDP-8 installations overtook the number of PDP – sorry, of Elliott 803s.

[laughs]

So, here was Elliott Brothers in the forefront. And it was a modular design as well, which had been used in in 400 Series, and was also used by Ferranti later in the Pegasus. So you were using that. You were programming it as well, were you?

I was programming it. Mind you, I didn't programme it in, in machine language. They had… I was really a scientific user of it. I used this thing for simulations and, and other stuff, which was actually quite difficult to do, because of course there was no video output. You started off with this, this paper tape which… You had a very short paper tape which was your program, and a very big one which was the operating system. And out came paper tape, and it punched a, it put then, went into a teleprinter, and that was it. So it was, it was really at that stage very very primitive. But it was very useful. Obviously it was very much more useful than the calculating

machine that I had on my, on my desk. You went on using the 803 for quite a long time, in fact for the rest of my career until I went to the, to the States in 1966.

[33:53]
You were in Borehamwood for two years. And then you went to Rochester for three years, again, research and electronics, electromechanical, particularly in aircraft control and navigation systems.

Yes indeed. Yes, and interestingly, just going back to the, where I, I had actually started. I remember picking up a book of, called *Cybernetics*, which you've probably heard of, and thinking, my goodness, this is, this is a, a very good direction to go. And so…

Is this by Norbert Wiener?

It was indeed, yes.

Yes.

And… So the real principle was, was etched into, into my mind. And in fact I, I did a lot of stuff, quite mathematical stuff, in the practical analysis of stochastic systems, which were in effect the, the sources of errors in aircraft instrumentation. So that sort of side was, was quite interesting to me. But I was also evidently regarded as a very good engineer, and systems engineer in particular, so I got promoted rather quickly, too quickly.

Why too quickly?

Because I didn't really have the experience to know and to articulate what was good and what was bad. And I found myself as Chief Systems Engineer of the National Navigation Division in my twenties, late twenties, and I was landed with a, a mechanical design which had a serious flaw that I, I only gradually came to understand, and, I should have had, if I had been a lot more experienced, the ability to say, 'Look, this is not going to work. So before we go and spend an awful lot of

money on it, let's abandon it.' I didn't do that. I tried to solve all the problems. And eventually the problems, I had, I decided that there were other, better things that I could do, and, and abandoned that ship.

[36:35]
Were you managing people by then?

Yes indeed. I had a small team of, of people who were working as systems engineers of various kinds. They were… I think, there were only about one or two of them, but I, I was then part of a, of a wider team which was working very closely together, including a Cambridge educated engineer called Clive Talbot, who, from whom I learnt a very great deal. But I think that in, this was not really a management post; it was more an advisory post, working out designs and getting other people to analyse them where appropriate.

You didn't have management in the Royal Navy, because, you didn't have a rank which led you to have power over other people. But you had been in management. What is the Anthony Hodson style of management?

[pause] I'm actually quite a good planner. I think anybody who is involved with, with computers and having to program computers know that planning is, is an extremely important way of doing things. I think I… I actually went in to senior management much later when I had joined Sperry Gyroscope in the, in the mid-Seventies, and, I think I, I would say that, I tried very hard to be fair, to listen to people; to be analytical rather than, rather than judgemental. And, I had, at that time, that later time, about 40 projects run by about six or seven or perhaps eight different people, and I, I invented a way of just touching base firmly, very firmly if necessary, on a weekly basis, so that the information came in systematically week by week, and, and good decisions could be made and things could be detected before they went wrong. So, I'm not a natural manager, I don't particularly enjoy management. I don't like politics of, of management. So I have, I think, tended to prefer to do things myself, or delegating within a, a very close-knit team.

You said that you should have taken a decision earlier on about the inertial navigation system. Which leads me to believe you might not be a very good butcher. Are you a good butcher?

I'm not a good butcher, but I will butcher if necessary.

[39:54]
Right. You then were moved to, of all places, Atlanta, to work with Lockheed, again for Elliott. Tell me about that.

Well that was a very exciting experience really. Elliott's had… At that time the USA had opened up to engineering resources outside the country. So, there were a lot of, of really quite sensitive projects which were, which were being sold, offered to, offering to bid for that I should say, from the UK and other sources. And Elliott Flight Automation at that time had got a number of quite significant projects with the C-5A, which was a, a huge military transport, and they were also looking for various other opportunities. And they were particularly interested, for example, in what they called head-up displays. With head-up displays, you have effectively a, a sort of, mirror which projects the instrument on to what you see normally. And these are obviously very important instruments in, in the military sphere, and Elliott's were extremely successful at selling them. And I, I had a role in going around the place attempting to sell that and other big ventures by Elliott Flight Automation. But the main role was actually acting as the intelligent link between the people back at Rochester and the people in Atlanta so that they felt that they were actually dealing with somebody who was just down the road, rather than several thousand miles away. And, so that was a very interesting job for the time, and I, I enjoyed it, and it was extremely successful as well. So I was good at that job. Although, being the man in the middle meant that you got the beatings from both sides.

[42:22]
[laughs] Are you a good salesman?

I'm not a natural salesman, but I, I sell in, in things that I'm really interested in. I did later become export director for a firm which sold plastic pipes and fittings, and I

have to say that, I, I did not have a general business sense to, to do that well. Whereas I think I, I did actually do quite well in selling the sort of avionic systems that, and later the computer systems that I got involved with.

[43:07]
You left Elliott in 1969. Why?

I think that I had felt that there were other things that I wanted to learn in the United States. And there I had been, as I say, a sort of go-between, an intermediate between Lockheed and people back home in Rochester, and that ultimately was, was not very satisfying. I could see that there was an awful lot going, things going on, particularly in the area of computing. And, so at any rate, I made a decision to, to leave, and managed to get a job with some people called Diebold, Diebold Research Program, which was run by an entrepreneur in, in management consulting called John Diebold, who specialised in the way in which computers were involved more and more intimately in business.

It was a pioneering consultancy wasn't it? In 1969, IBM unbundles, and creates a huge space in which the software industry can develop. ICL is formed, and Elliott goes away. Intel is formed. There are 79,000 computers in the world by now. UNIX has begun, and ARPANET begins to kick off. And so, for a year or more you were in Diebold, which was a very pioneering, as I say, consultancy. What was it like working in Diebold? You were in New York by then?

Yes, I was working in New York, in Park Avenue. And that, it was very interesting. You can imagine, though, that, that the culture was completely different, because I was then concerned with, with big computers which did data processing and big companies. Whereas all the computers that I had so far been involved with at the time were tiny. Even the, the biggest computer that was then being used in aircraft was about the size of a, of a suitcase. And so, there was a, there were two culture shocks. Culture shock one was, was actually getting to understand how it was that computers and business work together. We were, we did a lot of training in management consulting techniques, and so that was good. The other thing that we were concerned with in the Diebold Research Program was doing field studies by interviewing people

who were pioneering in the use of computers, and then distilling their experience, and presenting it at big conferences. So, that, actually doing that sort of thing, was also a big culture shock, because, that was the first time that I had ever been called upon to give, for example, a token speech about any subject whatsoever. And we had to talk for perhaps, ten or fifteen minutes on some particular topic, having written a speech which met the, the standards of immediacy and interest. And actually, coming to terms with that was extremely valuable, and sometimes very hard work, and sometimes my efforts were, got me a kick in the arse [US pronunciation], but, overall it was, it was very, a very good experience, and I, I enjoyed it to the extent, to the extent that I wasn't having my arse kicked. [laughs]

And Diebold, and just a, a number of other, a small handful of other consultancies, were so successful that mere accounting companies decided, ooh, we'd like some of this please. And they decided to pile into this area, particularly Andersen, and almost scooped the whole market up. But we saw what happened to that, [inaud] become independent again.
[47:41]
You then went into fittings and fixtures, as we call it, and, and became Managing Director later of Pick A Movie. I don't think we need to dwell on those two, do we?

[laughs] No.

Shall we…

No, I'll just say that my father-in-law thought that all this, this management stuff that I was getting involved in, perhaps I could be useful in the family company that he was just retiring from. Well that was actually a bit of a disaster, and the Pick A Movie thing was, was not much better. And I found myself, very very fortunately, back in my own area of interest and skill, in engineering with Sperry Gyroscope.

In 1973, and back, around Reading, in that area, in Bracknell. What were you doing for Sperry?

With Sperry, I, they engaged me as, as an engineering project manager which was reporting to board level, and which had… It was, it was… They had a, a sort of, two-way management system, project managers and engineering resources. So, my job was to, to manage some 40 projects, some big, some small, which involved uniting the skills of the project managers who would be ultimately responsible for, well, responsible to me, for the correct performance of their projects, and also the resources that they used to, to develop these projects. So, I sat at the top. I didn't have any staff other the project, the project leaders, and I had, I think there were something like six or seven of them. And, this was a very interesting job, and I was very, very successful at it. But, ultimately, I came to the conclusion that I was not a good enough manager to progress up to, up to board level, and I decided that I would turn techie. So, I managed to share my time ultimately, not only managing at the high level that I had talked about, but also taking a detailed part in one of the projects that particularly interested me, which was an early messaging system.

[50:30]
An early messaging system. Tell me about that please.

Right. Well, it, it used small computers, and interestingly you mentioned DEC. Well, in those days we were talking about a system which was based on 8086s, which you may remember, which were in effect a, a fully-fledged little computer, and it ran on a, on a DEC operating system which was tailorable, and the general idea was that you had small computers which acted, I suppose we'd call them email clients at the time, which were connected by, to a central messaging system, and that it was a message switching system, which meant that it was, it had no single centre; it was a distributed system, with a small number of hubs, and, and peripheral computer systems acting as the, as the agent. And so, this was a, this was a project that we were doing for a big shipping company, a shipping, manufacturer. Yes, it was a shipping company. And they wanted, obviously, to have good communications between the places where their ships were going to and the centre of the company. So they, they commissioned a system like this. And this was before the X.400, X.500 developments came along.

And you couldn't buy such a system off the shelf?

Absolutely not, no. No, this was really, really pioneering. There was, there was nothing quite like it at the time.

What was so new about it?

I think that, it was new because it was intended for people who were not techies really to be able to use it. So, it was aimed at a market of, of people who were ordinary people, and, and didn't, for example, want to use teleprinters and things, and paper, paper tape and all that sort of stuff, to send, send things about. It was, it was… It was actually quite primitive by today's standards, it has to be said, and…

But it was distributed?

I'm sorry?

It was distributed?

It was distributed, indeed it was, yes.

Because IBM would have said, put the mainframe in the middle, send all the messages through that. And the bigger the mainframe, the better the thing.

Ah. Well indeed that, that was, it was at about this time that the OSI enterprise came about. The OSI enterprise came about, Open Systems Interconnection, as a foil to IBM and their, and their centralised idea of, of distributed computing. And it was ISO who saw that something which was more under general control was, was needed. And so, it was about that time that the X.400 and X.500 OSI development came about, and one of the, well the chief architect of the project manager, Ian Valentine, was one of the real fundamental thinkers in X.400 which was the messaging system.

IBM would have suggested synchronous… No, SNA, wasn't it. Systems Network Architecture.

Yes, that's right. And, and nobody wanted to be dominated by IBM.

With its own protocol called SDLC.

Yes, exactly.

Linked together, and blew all over the place.

[laughs] Quite so. No, that was, that was a shocking thought. And so, there was a, a lot of, of effort that went on to sort that out. And after I… I had decided that I would leave Sperry Gyroscope, because the, the parent company of Sperry Gyroscope in Rochester, New York, was sort of pinching our prime, our prime project. I managed to get a, a very good job at ICL, which was just up the road, and here I… Brian Millis was, was one of the senior people there, and he was looking about for people who would think a bit differently. And somehow I got into his sights, and, and was brought in as, as a, a roving technical consultant looking at all sorts of things, and one of the first things that came up of course was, was X.400 and X.500 and the whole of the open systems interconnection.

[56:30]
Now X.400, X.500, X.25 as well, the lower level protocol, these were coming out from the old telecommunications side, weren't they? They were coming out from the ITU.

Yes, that's right.

The International Telecommunications Union. And the real split between computing on the one hand and telecommunications on the other was really beginning to break down. And ITU was pressing into this area, trying to create standards, as much for its own members as for the whole industry. Now, can you just take us through for a moment, what was X.400? That was the way the message is handled, isn't that right?

That's correct, yes. It was, it was a protocol which, which showed how messages could be generated and forward, forwarded, and structured as well.

And X.500 was above it, which was, how you connect between the different directories. Is that right?

Yes, I can't exactly say that it was, it was above it. In fact they were completely separate projects. The X.400 – X.500, worked completely independently of X.400, and was, X.400 of course was killed off by simple message, SMTP, and, and never resurrected itself again I think. Whereas X.500 did actually go on independently, and primarily of course because it was, was seen to be the primary way of distributing certificates and things like that. So, X.500 was, the idea here was that you should have federated independent systems which spoke to each other in protocol and were able to pass requests for information to each other where they didn't have the information to hand.

[58:44]
OK. You moved, only down the road, to Bracknell, but you moved into ICL, which is staggering from crisis to boom to crisis to boom to crisis to collapse eventually. What was ICL like in this period, from 1978 to 1993?

Ah yes. Well, when I, I first joined of course, ICL was very much mainframe-oriented, and mainframes, apart from the sort of very general idea that I had had from Diebold, was a new technology, and I, I found it very difficult to get, to understand what was going on in the theoretics of, of mainframes. And this was only mitigated by the fact that I, on interrogation I found that hardly anybody else understood what was, what it was all about either. You know, it had got to a rather woolly set of, of ideas, buzz phrases and things. So that was a great help. But what then happened… Oh, it was, we had a very interesting time at the same time. Brian Millis's team got about, and we were involved in a number of things including, as I say, the early stages of OSI, but I think what then happened, which was truly important in the, in the whole history, was that, Maggie Thatcher, struggling with economic problems, decided to put the interest rates up to, up in the sort of, high teens, and that raised the power of the pound, and the consequence was that ICL's export market disappeared overnight. And there was a, a huge implosion, many, I think it was something like 40,000 people were made redundant, maybe even more. Certainly tens of thousands of people. And so the, the company then went through a, a very difficult period of rethinking itself.

And the first thing that happened was that the original board had absolutely no idea what to do next. You know, they were completely out of, out of their own, well, there was no comfort zone around at the time anyway, but at any rate, there was a, essentially a collapse. And I think, Maggie Thatcher, behind the scenes, did help to prop up ICL so that it didn't completely collapse. But what was left of course was the realisation that the small computers with which we had been toying were now the way in which the world would develop for the, very much the most part And so, the culture changed very quickly from very big machines to very small machines, and here I found myself unusual in being one of the few people that actually worked intensively with, with very small machines, and particularly I should say with the work that I had done with that message switching system which involved really literally low-level programming of the 8086s and things like that. And, so, there was that going on. And there was also the X.500 and X.400 work going on.
[01:02:42]
And we were developing systems, I was also involved with, with word processing, and for the time, I was the word processing expert, although I can't say that my expertise was very deep, of ICL, and I helped them acquire a freestanding message, word processing system, which they bought from another company. And, so I, I stamped it as, as something which was quite good, told them what they had to do in order to maintain control of the, of the technology. I was summoned one day to, to Robb Wilmot's office in Putney quite late on a Friday evening, 'Hey, can you be here in an hour?' And, and told them what they had to do in order to maintain the technology. And they, they didn't do what I had said, and ultimately they lost control of that technology. So… But meanwhile, things were moving very much into the area of, of messaging clients and so on. So I was involved with ICL's early days of that, and designed a complete messaging client and implemented it. And, I then saw, having been involved with a number of bids, that X.500 was somebody who needed a, that needed a, a lead body. So I did what I could, and became the leader in ICL of X.500.

[01:04:44]
Now, Ken Baker, now Lord Baker of Dorking of all places, and Margaret Thatcher, imposed a new leadership, as you said, Lord Laidlaw, ex-BP, vice-chairman of BP I think, deputy chairman, and this man called Robb Wilmot, ex-Texas Instruments.

Yes. Yes, indeed.

But it's said of Robb Wilmot that if you told him that, you had upset him – sorry, he had upset you, upset your feelings, he would go and look in the dictionary for the word 'feeling'. What was it like working with Robb Wilmot?

[laughs] Well to be quite honest, I, I only saw him on a, on a few occasions, and I think the most seminal occasion was, was this, when I was summoned to, to Putney to advise on what they should do about the future of word processing. And so… I think he, he was a success in that he did actually, very, he did turn around ICL technology towards working with small computers. And, it was a very long and difficult struggle over the next two years while ICL really decided what they were about. And, they hadn't really decided what they were about at the time that I had left in 1993. So, were they, were they selling systems to, to, solutions to people, or were they selling hardware, or were they selling software, or, or what? And, of course at that time there was a lot going on, a lot of competition going on in that area, and so it was, it was a big struggle for them. And of course they then tied up with Fujitsu, and Fujitsu then provided a, the sort of, mainframe support base that, that they had really needed with the demise of all the 2900s and things like that. And, and at the same time there was this consulting work which was becoming increasingly important for managing big projects to people, and there was the technology work attempting to do something within the nascent technology such as X.400 messaging and X.500.

[01:07:20]
And on this Wilmot launch of the network product line, so that products were being networked together, and launched things like the One Per Desk.

Yes, exactly.

Not a great [inaud].

And One Per Desk… [pause] No. [laughs] Well, there was of course this amazing Singer machine, I can't remember very much about it, but it was, it was a, a sort of,

distributed system of that kind which had a, a very strange computer at the centre, and intelligent terminals at the end. And so it was a, that was a… Singer 500? I can't remember what it was called now. But it was never a big success, and it was seen that, that minicomputers were really very much the way forward. But of course, ICL was never very much into minicomputers of their own design.

[01:08:21]
No. And so they went… I remember at the time, we didn't know whether he was going to go with, I think it was UNIVAC wasn't it, or with Fujitsu. And I remember I phoned up ICL, and asked his secretary, that, I said I had to deliver something to him; what flight was he going to be on? Well, he was going to Tokyo, she said. I said, 'Fine, OK.' So obviously they were going to sign up with Fujitsu. [AH laughs] That's how I got the front page story.

[inaud].

Yes. But the issue there was, he got the technology, which was superb component technology, but he also had to take the Atlas, which was a Fujitsu mainframe, for the 370, and they were never able to sell any of those. And eventually of course, Fujitsu took them over and the name disappears. But actually it's still there. The ICL chair is still there, and the ICL pension fund is still there.

[laughs] Fortunately, it pays me, month by month.

[laughs] I'm very pleased about that Anthony, I'm very pleased about that. Was there a feeling of the end of empire?

Feeling of the end of empire? Well absolutely. I mean the whole, the whole situation really collapsed. And I think what had happened, what then happened of course were that, there were little shoots which sprang up in, in various places. There was a, there was the Harlow labs in ICL which, which had always been popping up new things, but now we were popping up new things in, in Bracknell as well. I think that, this was a, a sort of, a bit of a management problem, because, managing people who are doing new things is always difficult because you are never quite certain that you understand

them, and the people who are being managed never quite understand, are never quite sure that they are being understood. And this, this was actually a very, very interesting period for me, because, as I say, I had managed to pick up the lead of X.500, and in fact the, within ICL, the development of the X.500 technologies. And also, I managed to put together a tiny team which essentially was myself and Peter Gale, who was a very high-powered software person, and we decided that we would, or I decided rather, that we would make, design as fast as we could, the ICL's X.500 offering. So, he and I spent as much time as we could developing this, and in effect, this was very successful. The main problem of course was getting funding, and, I managed, as things went along, first of all to get a piece of the funding which was based on the EEC funding of, of OSI projects, and I was very much of course involved in the, in the standards, both primary and the secondary standards of that. So there was a certain amount of money that was coming up. But my managers in ICL on the whole were, not very understanding of what it was that X.500 was or could be, and they, they were taking various opportunities to try and switch me off. And I remember that at one point my then line manager said, 'Anthony, if you are still working on this by Christmas, you will be out of a job.' This… And it was fortunate at that time that I was just solving the, the last of the major problems of the, of the ICL implementation, which I managed to do. And at that point another part of ICL had decided that they really needed the technology that I was developing. So I got sort of, hoovered up by them, and, and the whole of the, of the, it was, got called i500 system, was then essentially on, on stable funding. And so this was a, something of an achievement.

[01:13:15]
And of course you've read Norbert Wiener, you said, and this follows one of the rules of cybernetics. If the control device does not understand what the device it's trying to control doing, it has only two things it can do. One, it can abandon control; or two, it can stop the device doing it.

[laughs] Well that…

But that's what he was trying to do.

Well I think that, yes, that, that does actually resonate a bit. But I have to say that there were some good managers, and there were some not so good managers. They hired a number of people who had absolutely no idea of technology, and certainly not at the sort of level that I was involved. And, so they, they really struggled, and as you say, turn the thing off would have been their instinct. But there was one person who I, I really would like to praise, who's a, a member of the Worshipful Company of IT, Gill Ringland. And Gill Ringland, I don't know if you've met Gill, but she was the manager who really enabled my little project to come to fruition. And so I, I'm eternally grateful to her. And the consequence of that was that, by the time I had more or less finished the primary design of the i500 system, I had enough knowledge, not only with, with the technology and the design implementation, right down to, I did actually cut a huge amount of C code in order to do this, and Peter and I integrated, we got a, somebody else who helped us do testing later on. But basically, we, we worked all the days, well at least certainly I did, day and night, and we made something that did actually work, and worked well. And, it eventually then got, got acquired by this new division which was working for a company in the, a rather dodgy company in the USA. I can't remember their name; maybe it's just as well. Because they were, they actually came into, into another, focus in my life a little bit longer. But unfortunately, that vision failed itself, and so, I was left with, essentially a complete project, but they wanted to move the whole thing up to Kidsgrove, which was where the main development of, of things was taking place, and I was given the option, go to Kidsgrove or leave the company. But at that point I had got enough skills, knowledge and experience to set up XdotD Associates, which was…

[01:16:24]
The… You've just touched on something which is very important for ICL, other companies as well. The different cultures and histories of different geographies. Now there's Kidsgrove, West Gorton, and there's Bracknell, to say the least. And the two were often at loggerheads, were they not? Why?

[pause] Power, I think is the short answer.

Right.

But, I have to say that, you know, my knowledge of, of politics at that level, I think is not, not very great. You know, there was the, the issue was of, let me see, what they call them? Tall, tall poppies, sort of thing. There were a number of people who were, who were able I think because of the problem of being managed, to, to manipulate the, the management around them. And this incidentally was something that I became quite good at in my own small way in order to preserve doing what I was doing with ICL, which I did manage to do despite several attempts to close me down. And so I think that it was a question really of, of, well of, of self, of survival, not only of what we were doing, but of the ideas which were behind why you were doing it. I don't know if that makes sense.

Surely.

If it's any help, or…

[01:18:00]
Surely. So, in March 1993 you broke away, and you formed XdotD Associates.

Yes.

How many people were there?

XdotD was a, was most of the time just me.

Right.

And it was, in fact I was told by, by a then local director at ICL that I was not allowed to take jobs with, consultancy jobs with ICL. So it was… I had one job when I, when I left, and at the end of six weeks, it was a Friday morning, and I had just come to the end of that, and I was wondering what on earth I was going to do next. And the telephone rang, and it was my friend Teodor Dumitrescu, at Siemens in Munich, who said, 'We are putting together a consortium to do some work on the, testing and validation of X.500 systems, and we'd like you to, XdotD Associates, to become a member of the consortium, and you will be a member of this with BT and France

Télécom, and GEC, and a few others. And so, would you like to join the consortium?' And this, this will be, it will pay quite a lot of money to do that. And, so I said, 'Yes.' And… He said, 'Well we haven't got the, we haven't got the, the contract yet, but we think that we've got a very good chance,' so that was great. And so I put the telephone down, thinking, my goodness, fortunes have really changed. And, the telephone rang again, and it was Steve Dooley. Now Steve Dooley had set up with Ian Valentine, who I've mentioned before, who had been the, one of the leading lights in X.400, and Steve had been for a moment my line manager at ICL, and they had set off, they started a new company, which did a number of things including training. And, so Steve said, 'We've got a thirteen-day course, thirteen days of work to put into a course, in nine days' time. [RS laughs] And can you do it?' So we said, 'Yes.'

Yes. [laughs]

So I did it. And, and in fact, and that moment, you know, I was never out of a, out of work. First of all of course, there was a number of things that happened consequentially from Steve Dooley and his company. And then of course the, the Siemens thing materialised. And subsequently, Siemens themselves engaged me as, as a consultant on the development of their own X.500 system, and involved me as a, in various other peripheral projects on that. And meanwhile, ICL came back and gave me quite a lot of work, and I did all sorts of things, generally speaking in the area of X.500. And that lasted me until 2006, when I was almost completely working on, on X.500 stuff for Siemens. And it was Teo again who said, 'We're very sorry, we've been reorganised, and we haven't got a budget for you. So I'm afraid to say that, you know, when you've finished what you are doing now, that's the end of the story.' So, at that point, that was in 2006, I was 69, and decided that, well there are other things that I could do, and did. [laughs]

[01:22:33]
When you moved into your own consultancy, you were 58. Yes?

Yes indeed.

That is quite, that's quite a radical shift at that time. It's quite, it's a chancy thing to do isn't it?

[hesitates] Yes; I wouldn't have dared if I hadn't, if I hadn't been pushed.

Right.

I think.

OK. OK.

And of course it was, you know, I did lots of sums about starting up and, and model [inaud] and so on, all of which was, was in the event… Well, at the time, when I started out it was hopelessly optimistic, and by the time I got involved with Siemens and, and Steve, it was hopelessly pessimistic. You know, because it was a very successful period. And, you know, it was also very interesting, I became involved, continue to be involved with, with international standardisation, and, both at the primary and secondary level, working in the USA as well as in, in Brussels. And so there was a lot to do, and it was very interesting. And… But I was quite happy not to be working sixteen hours a day.

[01:24:02]
Sure. You mentioned Siemens, which is still with us.

Oh absolutely.

But Plessey, Elliott, Ferranti, GEC, are not with us. Why? Why did these UK companies collapse?

Well I think, the thing about Siemens is that they, they are very diverse. You know, they, they've never been involved with just one kind of thing. And the thing that they were particularly interested in I think, it was… The thing that interested them particularly in X.500 was, using X.500 as a basis for identity management, and they particularly saw this in, in their medical equipment side, and it was the medical

equipment side which sucked up Teo and his people. And, and because of that, you know, they, they didn't continue as an independent team on X.500. So, you know, I think that, the diversification, they were a very, very diverse company. You can go anywhere… You know, I remember visiting a, a Greek fort, and there on the Greek fort was the remains of a gun emplacement. Siemens had supplied it. You know, so they, they were a very, very widely based company, and they could survive I think… I think they were, they also had a lot going on in research of all kinds.

Yes.

And they had some extremely good people. Now Teo was, I think, a, an absolutely, one of the most intelligent people I've ever met, you know, and he was, he had his finger in, in an awful lot of things, as well as, as X.500. And a very very powerful person.

[01:26:16]
You were there in your consultancy during Y2K, the year 2000.

[laughs] Yes.

We have a very wide spectrum of opinions so far in the Archives of the Y2K issue. Someone said, 'It's a wonderful con job by the consultants, and they made a lot of money out of it.' And others have said, 'Oh absolutely vital. Look what a great job we did. Nothing really crashed.' What's your view, Anthony?

[laughs] Well, I have to say that I have, I, I started with a, with a certain amount of shame, because it was I who actually took the shortcut that, that made the, the Y2K an issue. But on the other hand, they subsequently engaged me to fix it, and I did.

This was for who?

This was then for… Oh I, I continued, at that stage, to work with the, with the i500 team in ICL, and it was, it was they who then had responsibility for it, and they, they

hired me on, on quite a lot of, of enhancement jobs, and this was one of the ones that they paid me for.

So, it was actually, you've written this stuff; now make it four digits instead of two for the year. Is that right?

[laughs] Well that, that is about right. Yes, that wasn't, wasn't the only thing that, that went seriously wrong for a second or two. I, I also, didn't use a piece of hashing technology that I should have used in the first instance. Because, in those days people were very concerned about computing power. Computing power was, was a fraction of what it is now. And so, I was certainly, came from a background where, you know, both memory and computing power were very short commodities, short in-hand commodities. And so, I designed a sort of ad hoc hasher that seemed to work, but it didn't work with a cursor. Much later somebody found a drive with a bug in it, and, 'Anthony, we've found that your hashing thing doesn't work. Can you, can you give us some sort of explanation as to why this was?' Well that was a slightly embarrassing moment. But, there were, we used one of the so-called professional hashers, and, and I think, the system was, apart from the fact that, since the hashing was built into the database rather intimately, so we had to have a, something which converted a, a pre proper hash to a post proper hash, converter for all the databases. But… [laughs] So, I think that, you know, these things were, were important. But the Y2K was not a, a major issue. It was only a small issue.

[01:29:42]
Apart from those things, what do you think are the biggest mistakes you've made in your career, and what did you learn from them?

Well, one of the biggest mistakes… [pause] I made loads and loads and loads of mistakes. Small ones, a few big ones. I think one of the, one of the biggest ones was, I did not find it 100 per cent necessary to go all the way through projects. I'm afraid to say that there are a few projects that I abandoned. So I learnt that, the only good project is one that has been completely, successfully completed. And, and I think that, that involves a sort of, way of thought, a calming down of one's ambitions and so on. So I think that, that was certainly a, a very important lesson. The thing that I… I

think one of the things that I, I took them, right, those early days in, as an Eton scholar, was, a certain amount of resilience. There were quite a number of, of occasions which were very difficult later in life where I was under a lot of pressure, and I think that one of the things that I did learn was that if you persist in, in doing what you are doing as best you can, then you can usually ride through.

[01:31:31]
Are you an impatient person?

[pause] Potentially very impatient, yes. But I am also potentially very patient as well. I, I'm very conscious of, of my failings. For example, in being not a particularly tidy person, but every now and then I, I tidy things up. There are things, some things that I keep very tidy, and some things that I keep, I'm tolerant of untidiness.

[01:32:03]
Your office looks quite good, and I'm deliberately not showing you a broad, a picture of my office, because it's absolutely appalling. [AH laughs] So, do you, have you impatience, are you impatient with people who are not as clever as you are?

Oh yes. I learnt, I think I learnt… I… [laughs] I learnt to be that I think right from, from the beginning when my, my dear mother, who was not an academic in any way, used to complain that, that my brother, big brother and I, talking about things which he had no idea what was going on, and would I kindly stop doing it. So I, I did that. And yes, I think, I learnt to be able to talk to almost everybody in the Navy. You know, I, I really quite enjoyed the, that social thing. I've, I suppose I've, I've learnt how to put things over fairly simply and articulately to people, and I think this is something that I'm of course very interested in in my current role as a, as a Council member of Gresham College. And Gresham College has of course the need to put over complicated things, over to ordinary people, and so, this as a, as a general exercise, is something that I take particular interest in. And we are at the moment for example busy considering a new Gresham professor of information technology, and in looking at the people who, who might take up that job, it's very interesting to see whether they can have, do have the quality that you just mentioned, being able to, put things over to, to people less educated than themselves, without talking down to them.

[01:34:11]

I don't think that the people using the Archives are less educated, or, than you are, Anthony, but what you have proven to us is that you have made a very important contribution to the Archives, and take us through a number of complex technological processes and ideas, and simplify them and explain them very well. So I want to thank you very much for your contribution today to the Archives, Anthony Hodson, thank you very much.

[End of Interview]