Interview with Sir Eric Driver

This is an interview with Sir Eric Driver on 21st of February 2008.

Eric William Driver was born in 1911 in Plymouth, Devon, England the son of William Weale Driver, of Plymouth and his wife Sarah Ann Driver (née Philp) of Padstow, Cornwall. He was knighted on 18th July 1979. Sir Eric William Driver, died on 4th June 2010, in hospital in Cheshire, aged 99 years.

Colin: Eric, your life has covered most of the 20th century. Can we go right back to the beginning, to where you were born and so on and so forth, and your early years? Its will be of great interest to people.

Eric: Yes. I was born in Plymouth on January the 19th, 1911. My father was at that time a fitter in the Devonport dockyard. My mother was what is called a seamstress. Of course I don't remember her as a seamstress at all. And we lived a short - at least I lived a short period as an infant, in Plymouth. Because shortly after I was born my father was promoted and became a clerk in the Admiralty in London, and so the family moved up, lock, stock and barrel, and we lived at 139, Cavendish Road, Balham.

Looking back on that house, which I can recall fairly well because I lived in it for a long time, it was quite a large house in many respects. It had about five bedrooms and quite a large lounge. And of course it was not equipped with central heating or electric light or anything like that. It had a coal cellar which was filled from a scuttle in the pavement outside the house, sort of extending under the pavement of course. And the family there lived for a very long period.
I'd left 139, Cavendish Road in about 1938. No sorry, 1935. And I left at the same time as my father retired and moved back to Plymouth with my mother, and my brother at that time had left house and was living as a salesman of some sort, and my sister had also left the house and was enjoying a job as a typist somewhere.
And we didn't keep in very close contact with each other in those days, for reasons that I now regret. But it wasn't as if we were ever on bad terms, it's just that we were never on especially warm terms. But that was sort of made up for in later life. We re-established our links later on and had very good relationships.

Colin: Can I ask you, in your house, especially in the initial years, if you can remember about that far back. Could you tell us what the sanitary arrangements were and so on, because there totally different than what we have today?

Eric: Yes. My recollection is that there was a bathroom upstairs, but only fillable with cold water. There was no central heating and there was an upstairs WC, and there was actually a sink. God knows why. A small sink in a sort of little tiny cupboard in one of the bedrooms upstairs, but I don't know what it was for, it could have been used for washing. I used it later on when I was a small boy to conduct chemical experiments in it.
But now in terms of coming back to the bathroom, again, what I can remember is that though we had a bathroom, one the first floor [Editor's note: USA second floor] the bathing in the early days used to take place in an enamel bath, galvanised, sorry not enamel, galvanised steel bath which was laid up in the lounge, it wasn't called a lounge, it was in the main room downstairs and I now see the reason for it. That, since you couldn't have carried the hot water upstairs to the bath upstairs, it was much easier to have the bath downstairs close to the scullery where the water was heated up and filled from the scullery which was only a few feet away from this room, than to cart it upstairs. All the hazards that would be involved in carrying hot water upstairs. The logic of that of course was - I didn't work out until fairly recently.
But that's how it was. The only -- but later on, we must have had, before I left the house, in around 1934-35, we must have had hot water piped upstairs. Just how and why I can't remember, there was never any central heating in it. But the hot water must have somehow pushed upstairs before I left. Obviously the lighting, at least I can remember gas lighting, I can't remember, without any gas lighting, and I can't remember any electric lighting being put into the house at all. That I can't remember.

Colin: Did you, so did you used to bathe once a week, once every few days?

Eric: Way of bathing?

Colin: Yes.

Eric: My guess is, it wouldn't be more than once a week because it was obviously, quite a bit of a do, wasn't it, getting this enamel bath out? Not an enamel bath, a galvanised steel bath, out and then filling it with water. And [….] we were no longer allowed to have naked bodies with our father and mother, there was always a screen put up you see. And that was quite a bit of a paraphernalia.

Colin: So what about soap and shampoo and toilet paper? The mundane things?

Eric: I can't remember. It almost certainly would be newspaper I imagine, in those days. Almost certainly. And I can remember "Lifebuoy" soap, which you bought in a bar and you broke off bits of it as, when required. As I remember. I can't [...] the domestic side, I suppose, didn't interest a small boy too much, so I remember more about the garden and what happened in the garden. You know I can visualise the garden, and now, and what happened in the garden. We used to have a pit of some sort. We always had a cat, and we had tortoises and terrapins and one time I kept snakes and a fish, and would be [...]. Looking back on it I realise that […] looking odd these creatures. Could have been a lot better. We didn't know any bet [...], you know we kept fish in jam jars which were far too small really, and so on, and fed them on bread, which was not the appropriate food for sticklebacks! None the less they seemed to thrive and we had a lot of fun watching them one way or another. And we kept, I remember on one occasion we kept a young rabbit and a young kitten at the same time. And one of the joys of my childhood was to watch the young

kitten stalking the rabbit and making a sudden charge for it, and being totally flummoxed by the fact that the rabbit didn't run away, jumped up, straight up in the air. The kittens shot under it. That stuck in my memory.

Colin: So what about transport Eric? How did people get around? Especially in the early days when you were younger.

Eric: I can remember doing a lot of walking. The elementary school I went to was probably, it was probably nearly a mile, three quarters of a mile, or a mile away. I have no doubt my parents escorted me in the early days too, but I'm pretty sure I'd be doing it on my own very shortly afterwards. And the secondary school I went to was certainly a good two miles away and I just went there and back.

Colin: So those where local schools where they?

Eric: They were so called local schools but not all that local.

Colin: Yes.

Eric: But fortunately the walk to the secondary school was, what was then not exactly country, but had all the appearance of country. It was certainly a mile along a fine road, very little traffic of course, but great houses on either side and houses set real back, and wooded gardens, and it was quite a pleasant walk. Although as a kid that didn't impress me very much indeed. And then it came out into a hillier, more urban area around Streatham, and found the school there.

Colin: So did they have trams?

Eric: They had trams there and ...

Colin: Buses?

Eric: I particularly remember the trams, for one particular reason. Needless to say I had a bike and I did a lot of using the bicycle to get to places like Wimbledon and so on. I could reach Wimbledon by bike and I remember on one occasion being very alarmed, because cycling along the tram track and my back wheel got lodged in the center groove of the tram track, and with a tram coming behind me! And fortunately I had the impetus to get it out of the tram track before the tram overtook me, and that taught me a lesson, not to run parallel to the tracks, run diagonally across them whenever I had to do it. I can also remember ... there must have been buses. Because we used buses to drag us along. We quickly found out the way to travel with a minimum amount of effort was to get in the lee side of the bus and follow it, and be quite patient or at least you'd travel along gently when the bus stopped. And the moment it passed you, you'd pedal furiously to get in behind the bus again and it towed you along, and this was you know, standard practice. And it was very helpful indeed.

Colin: So were there still a lot of horse drawn transport?

Eric: Yes, there was. There was. I can't remember too much horse drawn traffic on what was called the main road because presumably it was dominated by other forms of traffic. But I can certainly remember the horse drawn traffic down on the Cavendish Road which was the road in which our house stood. And when the horse dropped its manure that was gratefully scooped up and brought back in for the garden. That was a bonus.
And I think the other feature I can remember, very vividly there, was terrible the fogs we used to get. And they really were fogs. And when the density of the fogs got such that you could never see the house opposite us. And the road wasn't terribly wide. But it was

blanketed out entirely. Fog was so thick you could see no glimmer of light or anything from the house outside. I didn't notice it being young, but I'm sure it effected the breathing of older people. And it was decidedly unhealthy.

Colin: So the coal was almost universally used for heating and cooking?

Eric: That's right, yes. And of course it wasn't anthracite, or smokeless, it was very smoky indeed.
And I can remember we had something which is called a back fire burner put in and that was quite a modern invention. It provided a certain amount of water being heated up behind the fire and circulated into a cylinder, probably in the kitchen, and I remember that was a major advance forward.
I can remember of course the first cat's whisker radio.

Colin: So when was that Eric?

Eric: When was that? You know, I can't put a date on it.

Colin: Roughly? Late 20's, early 30's?

Eric: I think it would be late 20's, that's right.

Colin: Was that […]

Eric: And I can remember prodding, trying to prod the crystal with the whisker, and myself, and getting a very faint response, which was to me marvellous of course. Couldn't understand why it was happening but it was marvellous and very intriguing.

Colin: So how did people get news? There wasn't radio.

Eric: I suppose the news arrived via the newspapers.

Colin: Would the newspapers print national news, would it?

Eric: That's right, national news. There wasn't much local news at all, except you might pick up a quite a few by the church of course, or chapel as the case may be. Most people where either chapel or church goers in those days. And we, as kids, went to chapel or Sunday School as it was called, on Sunday mornings, and sometimes in the evenings as well, with our parents. The news we got - I remember my father took in the Daily Herald, which was a Labour newspaper, and I suppose looking back on it, anyone with our level of living would naturally gravitate to the Daily Herald, which now would be regarded as a fairly moderate social-democratic paper. But in those days it was regarded as very much to the left. Less than totally desirable. But looking back on it of course, I remember the old adage "If you're not a socialist when you're young, you've got no heart. And if you're still a socialist when you're old, you've got no head".

Colin: May still be true?

Eric: These sayings are now becoming a little bit out of date, because the concept of socialism and capitalism has changed so much. Particularly over the last ten or twenty years.

Colin: Do you think that - until you got into the 30's - the information input for people came through local newspaper, national newspaper and word of mouth, I would have thought? In churches and so on?

Eric: I think that's true, but I think it's also true that the interest in national affairs was rather limited. I think it's chiefly because the ordinary man in the street didn't think he could have influence on them at all. It was only interested when we were involved in war or battles or something earth shattering. I don't think people were very interested in what was going on at the bank, and the exchanges or commerce and things like that. They were obviously interested in test matches and sport, but on the whole I would say our interest in national affairs and even local affairs was rather limited. A lot of news locally, I suppose, was spread by word of mouth. And the neighbours would say "Do you know so and so is happening?" or "The new shop has been opened here, there or the other". And that's how news was spread around the local level.

Colin: So you went to primary school and you left primary school, you moved a little further away, and you went to secondary school. Which was from what age? Eleven onwards was that?

Eric: That's right. I had to win a scholarship to go to this

Colin: Did you?

Eric: Yes. Which in those days, you know, I didn't see the significance at all. "Oh so I've won a scholarship. OK what does that mean?" I didn't […]. Looking back on it I realise of course that was a tremendous [….]

Colin: […] your life wasn't it?

Eric: Because I was not only going to a good school, but I was going to an exceptionally good school. Because the school that I got a scholarship to was called the Strand School. It was nowhere near the Strand, which is in London, but it was called the Strand School because it had close affiliations with Kings College, London University which is in the Strand. The Kings College had a small school attached to it for a long time, in which you

trained people to become civil servants. And boys to be civil servants. And it had expanded its intake so that in fact it was getting too big. And somehow or another, I imagine, its pure guesswork, that the London County Council decided they wanted a new school in Streatham. And they got the co-operation or support of Kings College to set it up and to, if you like, supervise the staffing of it. And as a result it was equipped with very high standard teaching, and particularly very high standard heads. I didn't realise this at the time, I took it for granted. It was a school with high discipline. It had sound Cadet Corp, you know we used to have to put on uniform and march with carbine's on our shoulders through the - every now and again. Through the suburbs and close to the countryside. And occasionally we would have a complete day out playing war games of a very of a very mild sort of nature in the open countryside. And they were good fun. We had our own band that used to - I remember it was quite a lifting it affair when you were tired on the way home, and you still had a few more miles to march, and the band strike up. It certainly put a bit of a spring in your steps.

Colin: So you went there at the age of 11

Eric: Oh yes!

Colin: When did kids get to leave school? Was that 13 still? In the norm stream of children?

Eric: The other schools - that's a good question. My brother, because my brother you see didn't go there, and it could well be he left school at 13 or 14, because I don't think there was any alternative available for them then. It was almost outside my […] then. It sounds very selfish and so on, but it didn't dawn on me. Because I regarded school as just a place for work you see. to me it didn't - I never had any concept of what it was doing to me in the long term, all I knew was it was a lot of hard work. And that's how it registered with me. I didn't dislike it, but on the other hand it was something that had to be endured and I enjoyed it with a certain amount of pleasure because I had my high spots at school, as well as a lot of hard work.

Colin: So you went at 11?

Eric: Yes.

Colin: And what age did you leave?

Eric: I went I think when I was 10. I have a feeling, but then I would have left at normally, I think at probably about 17. But on the other hand I was very much older than that. For this reason. I had a serious illness when I was about 15. It started with glands in the neck which grew larger and larger and larger, there was no NHS in those days, and eventually the doctor, the GP, simply said "Oh he's got swollen glands, they'll go down". But they didn't go down. And eventually my mother took me to the Golden Square Ear, Nose and Throat Hospital in London, where I saw a specialist. He decided, probably rightly, was that part of my problem was that I had very bad adenoids and throat infections and that was doing me down. So I was whipped in and had all my tonsils out. There was hope that that would improve matters but it didn't. and then the so called specialist started putting me on some treatment, we went in and sat in front of a sun lamp for once a week or something like that. And that didn't do anything. Do you want me to carry on?

Colin: Yes please. Just keep talking.

Eric: Then, here I had a stroke of luck. In those days you paid for those services by the matron interviewing your mother and father and deciding how much you had to pay. And I think this Matron got fed up with seeing my face. And she got hold of me one day by the

hand and she took me right away into a senior doctor's room, and said to this doctor "this boys got to be attended to". And by god the doctor paid attention to this Matron, I tell you. Because within a very short period of time I was told to present myself at the Kings College ... sorry King George VI Sanatorium, Godalming. Which was a Sanatorium for tuberculosis, and there I spent eight months in the Sanatorium. And for a long time I wasn't allowed back at school. In effect I lost two years of schooling.

Colin: So did that overlap the Depression Eric?

Eric: That, that period was when I was about 15. It lasted for two years. It probably lasted from 15 to sixth, to when I was 16 plus. So I lost 18 months or more before I was allowed back to school again. And when I went back to school, instead of ... er, I was a changed person. Because prior to that I had no interest in life other than work and school and cricket and so on. When I went back this time I'd learnt a bit about life. At the Sanatorium I'd been mixing with some very rough characters indeed. I'd learnt a bit from them and from now onwards I did enough work to get through the exams but obviously […] in getting through work. So my attitude to life had changed a bit, and here again in retrospect I don't think that was a bad thing. I have a feeling that in the long run that was helpful to me, rather than bad for me. So that's the reason I went to Kings College.

Colin: So you left school about what? 1930? And you went to Kings College?

Eric: I started University in 1930. So I was then ...

Colin: 19?

Eric: 19. Yes that's right 19. Which was probably 18 months older than what I should have been.

Colin: So what did you go to Kings College to study Eric? Did you get a scholarship is the first thing I should ask.

Eric: Well I think from what happened was this. First of all, my intention was when I was 15 and so on was to be a chemist. Because I was very very good at chemistry. I was also good at maths and at physics and so on. So I was clearly going to be scientific of some sort or another. And then I had this period in the sanatorium and I was impressed by the value of fresh air to people like me, that I decided that er, chemistry was perhaps not the healthiest of […] for, and I wanted something technical, scientific involving the chance of more open air and I thought, Civil Engineering. I didn't consult anyone. I didn't consult my father or anyone. I decided myself I was going to be a Civil Engineer. And I never wavered from that idea at all, without knowing much about civil engineering. So I was - I applied at Kings College to go for a civil engineering course.
Now I - my impression is, I think I got a free place for a scholarship. I don't think I was reimbursed for the books and so on, I didn't have to pay for the tuition and so on. I think I got a free place there. And my father had to cough up for the books and so on. And I went for a three year course there, and here again, I was easily sidetracked by the joys of the Engineering Common Room. And I learned to play bridge there and other card games. I quite enjoyed it there. But without anyway breaking out of the engineering circle into the other faculties around us. The Engineering Faculty at Kings College was the smallest, bar the Theologians. But it was minute compared to the Scientists and the Arts and the other faculties. But we were a very, very close knit faculty and in many respects we made a major impact on the college. For example, the college had a mascot, Lion in copper, copper plate, and the university college wanted to insult us by - the best way they could do that was by pinch our lion, Reggie the Lion. And when it was happened the whole of Kings College

looked to the engineers to get that back. So we were the ones that went out and determined to get it back by hook or by crook. So we were if you like, the pirates of the university. And we had a big influence in many respects. Although we were a small faculty we made sure we always competed in everything that was going on. Rugby and soccer and all the rest of it. And soccer players were signed up to play in the rugby team and vice versa you know. And all put up some sort of a show. It was a good social life, particularly as I say, within the faculty

CB: so you graduated in nineteen - ?

Eric: '33.

Colin: '33 as a civil engineer?

Eric: As a civil engineer graduate.

Colin: Oh! Sorry about that.

Eric: Because the civil engineers don't let you in just on the score or degree. You've got to do four more years on top of that before they give you membership of the institute. Associate membership […] two years are supposed to be spent on site doing construction and two years in design. That's the theory behind it. In practice of course things were totally upset by the Depression. Because when I came out, the Depression I think started around about 1931, and it was in full - it was in full swing in 1933 and 34 when I came out looking for a job.
And no one was the slightest bit interested in taking on any new engineer at all. In fact the people with engineers were getting rid of them, in order to keep their nose above water. And it was a slightly harrowing time for people like me. For there was no unemployment pay of course and my father was about to depart to Plymouth. And any rate he was on his pension or about to go on his pension. He was never very flush with money. So it was a very difficult period.
And I turned up at the college most days of the week after I finished the course in the hope of seeing a job advertised. Because there was a board there, a chalk board there, and if there were any posts available it would be written up in chalk on the blackboard. And invariably of course the best hope of a job would be in Victoria Street which was about a mile or a mile and half away, and you started running down there to get in. and I wasn't a very good runner so I was never beaten. There weren't many of these posts anyway, but you used to turn up in hope. So I never got one that way.
Eventually after 8 months of unemployment there was a job advertised as a draughtsman, which was a far lower job than I was looking for. It didn't add to my training at all, in the offices of the consulting engineer at St. Ann's Gate. And I applied for this job, and they weren't the slightest bit interested in the fact that id got a degree. Not the slightest bit. All they wanted was for someone to put pen on paper, you know, to produce some drawings. Without any thinking involved. So for 14 months I was working with Charlie Gibb, he had a good name of course, Charlie Gibb, at St. Ann's Gate. Mostly on the--- preparing drawings for ...

[phone rings]

Colin: So you were taken on as a draftsman and you worked there 16 months?

Eric: Yes that's right and then business started picking up and I was applying for everything that came in sight, anything must be better than this place because I was

learning precious little here at all. In fact I was doing—what I was enjoying doing was more mechanical rather than civil and I do remember one thing about it which taught me a few lessons and that is there's a lot of conservatism in engineering.
We were working on the new brewery for Guinness at Park Royal [in north-west London] and this was being built, I think, for political reasons. There was a threat of economic warfare between England and Eire, and Guinness were taking no chances, they weren't going to be cut off from their main customer.
So they decided to forgo the attractions of Liffey water which used to be the reason for Guinness being so successful and they decided that Thames water might do just as well in making Guinness and they were going to build this new Guinness factory at Park Royal in Middlesex. I can remember looking at some of the drawings that I was asked to replicate, that's all it was, replicating and I remonstrated, first of all with the man in charge of my office that surely we could do better than this. I was asked to produce, reproduce drawings showing cast iron drums with revolving sticks in it beating up the mash, which were all made of cast iron screwed into a shaft. I said surely in this day and age we can do better than cast iron? He took the point and referred it up to Guinness and the answer he got back was "we know cast iron works and were not going to change from that. It has got to be built exactly as the model that we have been using forever" ever since. So I got that lesson at least from Alexandra Gibb that people were very reluctant to change.
And then in, as I say, in 1935 I had three offers at once. One from a pretty unknown contractor's office, designing and erecting steel structures, called Smith Walker. Another one was I think from British Rail. Another one was I think from the London County Council and, actually, had the enticing nomenclature of assistant engineer, assistant structural engineer.
I had the good sense to think that I may as well get the advice of my Professor, so I went to Kings College and I said to Professor [Luthern] "I've got these 3 offers. What do you recommend?" And much to my surprise he said, no hesitation, "the contractor, don't have anything to do with British Rail", no it wasn't British Rail, of course it was one of the railway companies. "Don't have anything to do with the L.C.C. Go for the contractor". And at the time I thought "that's odd", I didn't see the point in it. I saw the point later on because although the work was still pretty lowly stuff, I was actually to start with doing no more than detailing construction drawings that were to be handed to then fabricators for producing structural steel but there was an ethic of work about Smith Walker's that was total new to me. And it really was. They paid well, they used a lot of overtime, and they paid well for overtime but by god you were expected to work.
And they obviously-- and I wondered about this very quickly and after 6 months much to my surprise I was promoted to squad leader. I was in charge of 6 others who had been doing their job for years and years and years. Well I was squad leader and then after about a year, the Chief Draftsman, he used to call us all in at Christmas time and tell us what our bonus was because every man got a bonus and if you didn't get a bonus you got fired because they wanted people to earn bonuses. But I got a practically good bonus and I went back to my desk feeling quite happy. About 20 minutes later another draftsman came up to me and said "you might be interested to know what Gates (That was the name of the Chief Draftsman) said to me. He said is Driver satisfied with what he got?" and I put 2 and 2 together very quickly and marched into Gates' office and said "look, I'm satisfied with what I've got, but I'm not satisfied with the job I'm doing. I want to become a design engineer" and he said leave it with me, and a month or two later I was a design engineer with Smith Walkers which for the first time put me, if you like, put my foot on the professional ladder.

Colin: Sure.

Eric: At that time my foot was not on the professional ladder at all. I was just learning if you like, a bit about life and how things tick, which is all valuable of course but it wasn't getting my foot on the ladder. And then I had about a year or so designing steel structures of all sorts. Mostly flats, but occasionally things like structures for cinemas and factories and so on. And then I decided I've got to expand my interests. I was still searching for an advert for civil engineering, but without any success at all.
Then I applied for a job to do reinforced concrete design in Victoria Street. It was a very small outfit indeed. I was virtually the one and only designer, there was a senior man in top but didn't see him do much design and he—oh sorry, one other man was there, but he got quickly fired because he was not up for the job.
It was easy work for me because all of it had been covered in my degree course, so I wasn't in any way bothered about it and I could turn out the stuff quite easily and then after about 2 months of this or 3 months of this I saw at last the job I wanted, an advertisement by ICI for a civil engineer at Runcorn.

Colin: Is that '38 Eric?

Eric: That was in 1938--- it might have been the tail end of 37 when I saw it but I came up for interview in 37 and I was taken on to start in, I think it was February 1938.
Oh I forgot to mention by the way when I was employed in Alexander Gibb, my first job, my salary was £2 per week. When I was employed by Smith Walkers my salary was £5-50 a week which I thought was quite good in those days. And as I say I got good bonus on top of that. And when I left the reinforced concrete firm I was probably up to about £7 a week.
So when I was employed, interviewed by ICI they asked me what salary I wanted, and I didn't have any idea what the going rate was. But the oldest thing for me to say was £8 a week. So I was employed by ICI at—they didn't think in payments per week, they thought in payments per year. So I was employed at £415 a year, which was one pound less than what I asked for and that was my starting salary there.
At that time I was engaged to be married and in fact I was married shortly after I started work with ICI. It was a matter of up sticks.
I had no money, of course, so I had to rent accommodation in a very small house indeed. And no car, I couldn't afford a car at all. But the mystery about my employment, early days of employment, only became understandable in later years.
Because I was interviewed by D. C. McCormack and W. O. Wright, they were going to be my bosses, and it was obvious that W. O. Wright was the big band and equally obvious he didn't know anything about design and it was equally obvious to me that McCormack was a knowledgeable man on reinforced concrete but didn't know much about steelwork design and he was horrified to hear that I was to take into account wind when I was designing structures which he, as reinforced concrete designer, never bothered about because reinforced concrete is usually a pretty massive sort of construction they ,apparently, can afford to ignore wind but steelwork can't, anyway that registered with me.
I was taken on and when I turned up to be given a job, I wasn't given a job at all, McCormack said to me "you better do some leveling". I'd done plenty of leveling with a theodolite or level at Kings College so that didn't put me off. It was a lonely job but OK if that's what they want to start me off on that's OK. And then rather surprisingly he said to me "you better go ahead and buy your own level". So I said "well how much am I allowed to spend?" Oh he said "you know, there's the catalogue you pick put what you want, and buy what you want". So I was given this catalogue and they hadn't told me what I was going to level. But I hadn't any idea what I was going through, mountains or country or whether I was going to have assistance or what. So I decided I was going to buy a high class level that was reasonably light to tote around the place in case I had to do some mountaineering.

And it was a nice enough level. Looking back on it, it was a bit too light. Knowing what it was going to be used for I would have picked a heavier level, realizing also that I wasn't going to have to do any carrying at all. I was going to be allocated someone to do the carrying. I didn't know at the time that I was in […]

"What do I do now?" Oh, he said, "there's a great, vast mound of rubbish tip in Castner Kellner Works, go in there and measure it and tell me how many thousand cubic yards of stuff there". So I went in there and I was given a man to hold the level, do the rough work with and I wasn't given an office though I was told to bed down in the middle of the Castner Kellner Works well away from where I'd been interviewed. I had to share an office with two Foremen in the Kellner Works.

To me, a southerner, it was an enormous surprise, everything was total different. You know here I was working in the middle of the factory, where as soon as I stepped outside this hut, I had to beware little trains puffing by, towing wagons hither and dither tolling a bell certainly so you heard them coming but no walkways at all. There was a very peculiar smell throughout the whole factory.

And then I soon found my way to the tip and I started leveling and I was left on my own. I didn't know exactly what they wanted this measured. I realize now I was given a job that had no purpose whatsoever in it. They wanted me to occupy my time while my name was cleared with the War Office. For, you know, this was taking time. As far as McCormack was concerned he couldn't invite me back until he got this clearance because whenever I came back he was going to give me some news.

So eventually after about 5 weeks which I found terribly boring indeed and very puzzling because I was doing no civil engineering at all but suddenly got the call to go back and there and behold I was put in an office, next door to McCormack's office, next door to W.O. Wrights office. As they were all the same size clearly I'd got a promotion of some sort which was totally underserved. Then I was told for the first time I was working not for ICI but for Special Products Department, whatever that was. They weren't explicit what Special Products Department was but it very quickly became apparent that it was being funded by the government. Every time I wanted to spend some serious money like […] contract or something like that I had to go along the corridor to what was called "Government Johnson". Government Johnson was a man with a wooden leg, who had to certify that the price was right for whatever I was ordering. I was given a free hand to get on with what I was doing.

I was also given some draftsman to control, that's a story in itself because the Draftsman I was allocated to originally were taken from the Castner Kellner drawing office and put in a timber hut, quite close to my hut but very quickly these were totally inadequate, and several other huts were added to the set up. We had an influx of draftsmen imported from London. From a reinforced concrete consultant or contractor called Truscan.

All these people came up there complete with their own section leaders, which means Senior Draftsman and they were put under my control. The drawing control if you like, of McCormack and myself and in those early days McCormack was the boss. But there was so much work piling in that almost immediately I lost sight of McCormack and I started having to control the Drawing Office myself.

He disappeared for weeks on end and I didn't know it at the time but we were also doing the same sort of thing, doing work at Springfield and Hillhouse Works and these were being engineered in Drawing Offices about a mile away from us and that's where McCormack was spending his time. So I was left on my own at Castner Kellner Works looking after this Drawing Office.

There were one or two chemists that used to breeze in occasionally and tell me what they wanted to be done, and I did it. So pretty early on I was in effect in total charge of the civil

design effort that was going on at Runcorn.
I saw W.O. Wright occasionally, he would breeze in. he never attempted to comment whatsoever on the design work but if there were any troubles with the contractors, that's when he came in and did his best. He did more than his best, he did a jolly good job. I can remember letting a contract for mud shifting. Mud shifting is the genuine, the real term for moving earth to conform to different shapes and plateau's and levels. One of the first jobs I looked after was the mud shifting for […] which was on a fairly steep sloping site and it had to be terraced on which you would have a level plateau for putting up buildings.
We let the contract to an outfit called Bernard Sunley, and I remember the price even now. The mud shifting contract was for forty thousand pounds and admittedly there was a lot of bad weather involving—which certainly delayed him a lot, and he put in a surcharge on top of forty thousand pounds of a hundred and ten thousand pounds, making a hundred and fifty thousand pounds in all. W. O. Wright said "leave it to me", and he got the boss of Sunley's in. Who I remember was a Knight, Sir Bernard and of course I had to meet him and I was in part of the discussions. W. O. Wright started to dis-member Sir Bernard Sunley and he made a very good job of it too. So instead of coming out with an extra hundred and ten thousand pounds, he came out with an extra ten thousand pounds. We admitted there was all the bad weather and he should be paid a bit more but instead of a hundred and ten thousand it was ten thousand. That was when W. O. Wright earned his salt. He was very good at that.

Colin: When did you get involved with Rhydymwyn? With the Valley Works

Eric: Rhydymwyn? Well Rhydymwyn came I should think about maybe a year about a year after I started with ICI. I was asked by, I think it was a chemist, with who I'd had dealings around the works to go out to Rhydymwyn and talk to a certain gentleman there. I think the gentleman was an engineer with the Halkyn mining company.

Colin: H-D-U-M.

Eric: Yes and there was also an ICI resident engineer there doing some small preparatory work. The first thing I know is—they suggested to me, it might make some sense to me if I went down an existing lead mine to understand some of the problems of the area.
So I was led down this disused lead mine which was very impressive indeed. To me, I'd never been down a mine before in my life. I can remember being led, being equipped first of all with a miners helmet, and some sort of cape or waterproof and being led down first of all a tunnel which was very wet, and then down a vertical shaft which was even wetter. And they were totally unlit and you were depending on your […] to grope your way. I could never have found my way there without someone leading in front of me. We came to a hole in the floor and there was a ladder. I could see very dimly a ladder in the hole. I didn't know what size the hole was. It was too dark to see that. But my guide suggested I go down the hole first. The ladders were vertical and I thought it would be anchored at the top but it wasn't. Much to my horror half way down the ladder started swinging out of the vertical so I was slightly on the wrong side of being vertical. I didn't recognize that the hole at the top was so small it couldn't move too far so they hadn't bothered to secure the ladder because they were used to doing this sort of thing and it didn't bother them. It didn't occur to them that it would be a sensible idea to stop the ladder moving at all. Anyways after a lull I got down there I saw what lead mining was all about and I was brought up.
Then I was introduced to the site, and not by—I was shown the site I think by---. I forget who showed me the site. But I was told that my main job at that stage was to make the site ready for a factory to be built there and the river was in the way. Quite literally the river was in the

way. It wound a very serpentine route around this very narrow valley for miles. It was very difficult to get a decent rectangular shape on the site without sitting on top of the river.

Colin: So you looked at the valley and you need to canalise it?

Eric: Yes that's right, and I had to refresh my memory of my hydraulics training at Kings College and I was reasonably confident about it. There was no difficulty about doing the calculations the main difficulty was to know what volume of water I had to contend with. I realized, of course, the river would in wintertime be a lot bigger than the one I was looking at. And the only thing I could do was look up the records. And the records did not extent very far back. They extended about 20 years or so back.
I took the biggest record flow ever recorded and it was war time and we were constantly being emphasized by the government that all materials where short and we had to be very economical and I thought well bearing in mind that the government's requirement's, I'd better allow for twice the highest flow previously recorded and then I had chickened a bit and I decided to make it two and a half times which I thought was about as much as I dare do. So I designed the aqueduct to take two and a half times the biggest flow ever recorded. Well then, of course I think everyone is aware of what happened.
On the first year we had a flow down of four times bigger than is recorded and that was com-pounded by the fact that apart from the water coming down we also brought down several hundred tons of rubble and rocks and stones which filled up the river just before it flattened out and caused the site to be flooded. This caused a certain amount of perseveration and I was asked for an explanation which I did and everyone accepted what I'd told them, which was plainly the truth but I was told that we could not afford this risk happening again once the fac-tory was constructed so I'd better do something about it.
I said there's only one way to anything about it and that is to construct a tunnel parallel with the aqueduct in the hillside which would accommodate a much greater flow. Permission for that was given and we went on and did it. And I enquired many years after the war was over whether that tunnel had ever seen any water and I was assured that it remained dry, which of course, I expected because these exceptional flows probably occur once every fifty years or so. And that was that. So that was my experience of the river.

Colin: So the valley bottom Eric?

Eric: Yes.

Colin: Was covered in with the outage from the tunnels?

Eric: Yes.

Colin: And so no buildings could be built until the tunnels had been excavated to some degree to provide the base for the buildings?

Eric: Well, I think they were strictly speaking some work could start because you know we used the parts for the valley floor to level it up but the site itself was quite flat and quite reasonable for building on, it wasn't by far the best, put it this way, of all the five sites I was involved in during that war period the valley was the best foundation of the lot.
It was the best foundation of them all, we were actually on limestone with obviously some broken stone on top of the firm rock. So it was quite a good base on which to put buildings. What tended to happen was as the tunneling proceeded they had to get rid of the stuff somewhere, and as you know the site is a very long site and they distributed the stones along the side of the site which we hadn't used but which we were about to use. So no, it didn't stop the first buildings going up at all.

Colin: No.

Eric: Got on with that right away.

Colin: The buildings which were built there, like the P buildings.

Eric: Yes.

Colin: Those were copies of the ones at Randle?

Eric: That's right.

Colin: And were those ICI designed?

Eric: They were designed by ICI, they were designed in the Runcorn office and all the design was done in the Runcorn office. Yes, well, everything was designed in the Runcorn office.

Colin: And there was a question of saving metal wasn't there? Saving steel?

Eric: Oh yes.

Colin: So there was something really (…) there wasn't there?

Eric: Oh yes, the ministry they were very anxious to make sure we weren't using too much steel on our buildings, and they sent us a sort of code telling us how much, how many pounds of steel should be used per cubic foot of building and so on, and I looked at it casually and decided we were well within that range and didn't think any more about it. And then the Ministry decided to send an official to check up himself on what we were doing. So when he came and started talking to me about this I was in no mood to be criticized at all. So when we allowed him to tell us how much was allowed per cubic foot of building, I said that generous isn't it? And he blinked at me and said what do you mean generous? I said well we are doing it for half of that and that shook his composure a bit. He didn't believe me at first of course. But we were and we were being very economical chiefly because we were using this barrel arch type of roof which puts the concrete in compression and concrete is very good in compression but not very good in tension. In fact it's bloody useless in tension.
And we were being quite economical with the use of our steel and by and large the Ministry left us pretty severely alone after that.

Colin: And those buildings were designed to last three years?

Eric: They were, I was told they had to last three years and of course you can't design a building to fall down in four years, nature intervenes and other things intervene and in fact I remember one of my smaller buildings did fall down around six or seven years after it was put up and the Works Manager concerned was slightly scathing, slightly critical of me, you know and I pointed out that it was no longer safe to use.
He wasn't present of course when these buildings were constructed so I had to remind him that the building had exceeded its working life twice over and it was about time it fell down but that was the only one I can recall falling down.

Colin: To go to the tunnels you were involved in the tunnels, could you tell us about that, your involvement in them?

Eric: Yes. Well I was involved in it in the sense that I think I was given the job of providing the ventilation and so on. Obviously the working drawings of the tunnels were dead simple. All you had to do was give the tunneling contractor a description of the hole you want. All you had to do was describe the hole but then this hole or series of holes had to be ventilated.

It was quite a problem because the amount of air that had to be pushed in and out was quite large and the intention then was to put in a circular duct in the ceiling and carry in the fresh air through this circular duct.
Well I remember saying to the to the chemist look, there's no fix on the height to this tunnel is there? He said oh no, no, it's just got to be over such and such a height. So I said well I can reduce the height of this tunnel by using the tunnel space above a full ceiling as a ventilating cavity and I got the OK to do that.
I checked up, by the way, with the Halkyn people, that it would be a simple matter to suspend a ceiling from the tunnel roof. I still remember by the way how it was going to be done. They were going to get a circular rod, steel rod, and cut it down the middle, at one end, then drive a steel splice gently just an inch or two into the cut. And then you insert the whole of this into a hole of the same size of the steel rod. And then hammer it home. In hammering it home the steel spreads itself out into notches and anchors itself for good. I remember him telling me this and they said these no problem and there clearly wasn't because I never had any problems with that at all. And that's the way the tunnels were ventilated. I remember, I think the contractor by the way was called Andrews Machine and we did a lot of those ventilation works with Andrews Machine. Incidentally of course all our factory buildings using methane (…) in Runcorn where had to be well ventilated, and by and large we used the same contractor every time.

Colin: To go back to the tunnels. So they drove the rods into the ceiling and they suspended the mild steel base?

Eric: That's right.

Colin: And they rested it on to buttresses which came out of the wall?

Eric: It hung you see, basically it hung. It extended across the roof till it hit the two walls.

Colin: Yes.

Eric: And there undoubtedly there would be pegs in the walls to anchor the longitudinal part of the false ceiling.

Colin: So were you involved in the air management system, the air conditioning system at the front?

Eric: That's right, that's right.

Colin: So that pumped it in through a trunking?

Eric: That's right.

Colin: Up the central tunnel,

Eric: Yes.

Colin: At where a ramp dropped and it went up the ramp into the ceiling.

Eric: Yes. Yes, that's right.

Colin: Into the ceiling.

Eric: That's right.

Colin: Out of the ceiling, through the wind vents in the floor, through the sump at the end.

Eric: That's right.

Colin: And out of the chimneys?

Eric: That's it.

Colin: Now before they put in that air conditioning unit, which came in about nineteen forty three.

Eric: Yes.

Colin: How did they achieve ventilation before that?

Eric: Well I'm surprised it was not in until 1943. I'm very surprised at that because I would have thought that it was almost impractical to do it the ventilation equipment was in there. I don't see how it could have been done quite frankly because all the time that the false ceiling was being done, you were obstructing entrance to the tunnels.

Colin: Well it's said, that was so according to the history. There's one part we don't understand. The part we don't understand is that before the air conditioning went in.

Eric: By the way, you refer to air conditioning.

Colin: Sorry, air management.

Eric: Well is that it? As far as I was concerned it was air ventilation.

Colin: Yes, and I doubt if there was in those days, anything's called air conditioning. Before that there was a system whereby three bulkheads dropped over the three tunnels in A, B and C, and when the three bulkheads dropped they sealed off chambers C and D which were the ones with the sixty five ton tanks in.

Eric: I see.

Colin: And so if they had a problem in there.

Eric: Oh! I see.

Colin: Three bulkheads dropped there.

Eric: I see.

Colin: And they could direct into the air vents in the floor.

Eric: Yes.

Colin: They had dampers.

Eric: Yes.

Colin: Now I say dampers to anybody these days and they say what are dampers? Whereas people, people older, dampers are plates you drop into. So you could drop a damper or dampers in there and you could pick which part you sort of flushed out but that was before the air conditioning came in because its said in 1943 that's whatever the date was right?

Eric: Well, the only thing I can conclude, is that at a very early stage before the time my work was actually put into place, they had shutters. They shipped large quantities of bulk liquid this is the only thing I can conclude which could be done relatively safely because it was a single operation. It wasn't a 48 hour operation or anything like that, or a 168 hour operation.

Colin: No.

Eric: It would be done in batches and other words the risk would only be real for a limited period, during the offloading period and this is speculation on my part. I don't know it, but

it's the only way I can see that it being done because I can't believe that anything other than that sort of operation would have been safe without the full ventilating system being available.

Colin: OK. Well I will send you some documentation on it.

Eric: Yes.

Colin: Because I don't have your background, you have a much better chance of working it out but it's fairly well documented.

Eric: Yes.

Colin: And we just have one place where we can't see how it worked.

Eric: Yes.

Colin: And this pictures and everything, and I hope that would be of interest to you.

Eric: Yes.

Colin: To, to say that. Hey, well let's see how the ventilation system worked, the air conditioning, but I can't see worked before that. Please can you give me some help?

Eric: Yes, well I'll do my best.

Colin: Eric, we are at twenty to one now.