

CUTTING EDGE CONVERSATIONS

EJ 'Ted' Cutting

Aston Martin's Celebrated
Chief Race Car
Design Engineer



Compiled by
Stuart Bailey

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CUTTING EDGE CONVERSATIONS

with

E.J.'Ted' Cutting

C.Eng. F.I.Mech.E.

Compiled by

Stuart Bailey

Cutting Edge Conversations
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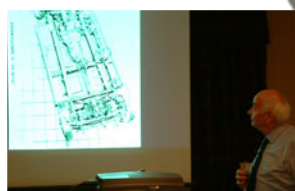
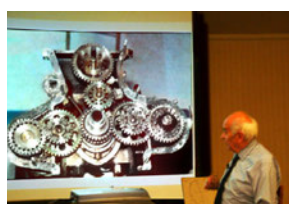
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Front Cover Image
Stirling Moss DBR1 number 4 first away at the start of the epic 1959 Le Mans 24 hour endurance race.
Photo: Brian Joscelyne

RACING ASTONS

a unique video recording
of a rare illustrated presentation
given by EJ 'Ted' Cutting
for an
Institution of Mechanical Engineers
Automotive Lecture
on 16th. April 2003



This 1hr. 45min. video was created and produced by
Ralph Thompson for AMHT and with kind permission
a DVD was mounted in the back of the original hardback books
and subsequently embedded into the eBook.
Ted agreed it would be a fitting endorsement to the books content.

— An Audio Visual of Ted Cutting —

With this eBook, you are granted access to exclusive video footage:

[Click Here](#)

to see Ted Cutting presenting 'Racing Astons' to the Essex Automobile Division of IMechE and invited guests from AMOC on 16th April 2003

Acknowledgements

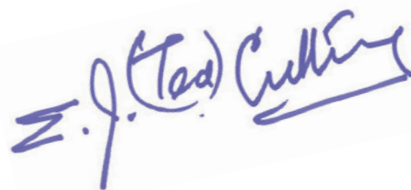
First and foremost to Stuart Bailey and Brian Joscelyne for motivating me and starting the ball rolling with the lengthy main interviews, also Lori Peters for transcribing the initial audio tapes into viewable text, which transformed the proposed project into something tangible for me.

Then as the venture evolved with photos, logos, illustrations and documents, the necessary copyright permissions were sought, all these items only became available with the willing and able assistance of many individuals, from the many sources approached, including:—

The Aston Martin Heritage Trust — Aston Martin Lagonda Ltd. — KLG Spark Plugs — The Allard Motor Company — David Brown Industries — Glacier Bearings — The Ford Motor Company — Institution of Mechanical Engineers — Richard Williams — Peter Livanos — Clare Hay — Johnathan Dormer — David Burgess-Wise — Keith Dixon — Charles Morlham — Wikipedia Common — The Motor — Autocar — Motor Sport — Autobooks Ltd.

With a special thanks to Diana Downe for consenting to add her complimentary observation as the foreword.

Finally with immense gratitude to my wife Dorothy, Brian and Stuart for their overwhelming support, patience and invaluable assistance throughout. Since my health has begun to fail me at the last hurdle, I will leave it to them to kindly take over the reins, safe in the knowledge they will fully complete this somewhat expanded project.



Z. J. (Ted) Cutting

FOREWORD BY
Diana the Viscountess Downe
President of the Aston Martin Owners Club
and the Aston Martin Heritage Trust

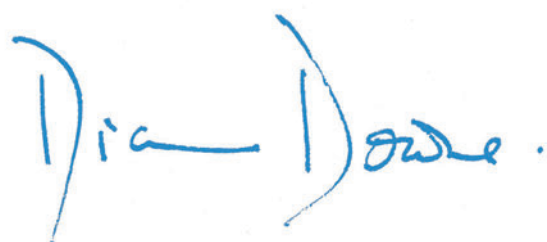
I am so pleased that in this book, primarily of conversations with Ted Cutting, readers may learn something about his life and career. In Britain engineers seldom receive the recognition which they often deserve and Ted was never one to 'blow his own trumpet'. Ted's is a story well worth telling and this book is the result of many days engaged in conversation while recording his memories.

My late husband John, had good cause to know Ted who was the mastermind behind the 'Project' Aston Martins of 1962 and '63. When Project 212 was no longer needed by the AM racing department John bought it, also in that year he entered Project 214 in the Le Mans 24 Hours for Michael Salmon and Peter Sutcliffe to race, under the banner of Dawnay Racing.

We all associate Ted Cutting with Aston Martin, particularly as he was with them from 1949 to 1964 — an historic period — but his career was so much more than that. One of his rather unusual appointments was to have advised Her Majesty's Government, in negotiations with the European Union on proposed legislation relating to vehicles, fuels and emissions. Not many people know that — so typical of Ted!

In later years when racing historic cars became popular, John was able to enter Project 212 and the DBR1/1 for Michael Salmon to drive, these two Astons were very successful, and a joy to watch. As both cars were designed and engineered by Ted Cutting, we were most fortunate to have had his advice and to further demonstrate that his racing Aston Martins were still winning races.

I am sure that this book will be enjoyed by all who read it and that it may even inspire some younger readers to take up a career in engineering.





In 2005 Diana Viscountess Downe presented E.J. 'Ted' Cutting with the prestigious – Viscount Downe Aston Martin Heritage Trophy – Awarded to a person who has made a major contribution to enhancing the heritage of the Aston Martin Marque.



Aston Martin Project 212 competing under the Dawnay Racing banner in September 1974 with left to right:— Lord (John) Downe, James Dawnay, Lady (Diana) Downe, Jean Salmon, Richard Williams and Michael Salmon.



Viscount Downe.



Michael Salmon driving for Dawnay Racing in the Aston Martin DBR1/1.

HOW THE PROJECT CAME ABOUT – by Stuart Bailey

I initially developed a passion for all things Aston Martin after I was invited to join the Aston Martin Owners Club back in 1975, when I took my then, newly acquired DB6 to Brooklands for my very first Classic Car event. I subsequently enjoyed driving my 1967 model (*pictured below*) for over 30 years and still play an active part in AMOC, which had introduced me to a comprehensive events calendar with a lively social life as well.



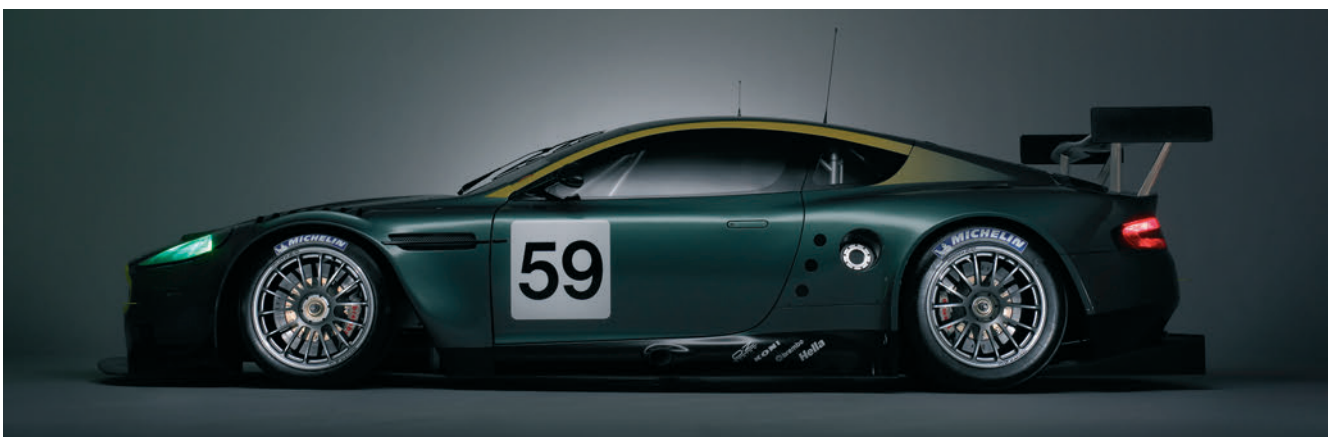
It was shortly after joining the AMOC; while learning about the car and the extensive Aston Martin history provided by the Club, that I first became aware of Ted Cutting.

That well documented history revealed his creative genius in automotive design and engineering, within the earlier David Brown era of racing cars, linking him intrinsically with the company's major achievements, vision and aspirations, which then reached the pinnacle of excellence in winning the World Sports-car Championship in 1959.

The activity and successes in racing throughout that time, had directly influenced the whole David Brown generation of road cars, adding much to their desirability.

My earliest recall of meeting Ted was at lectures in the late 1980's, initially through an invitation to an Institution of Mechanical Engineers lecture on the first Aston Martin V8 Virage development, from then on meeting quite regularly at these local automotive lectures, especially when they were about Astons.

On one particular special occasion in 2004, Ted asked if I would accompany him to the Aston Martin HQ at Gaydon, this was for the evening announcement of their official return to motor racing with the unveiling of their new DBR9 sports racing car (*seen pictured below*), a direct descendant of his DBR1, quite a privilege.



During the long journey I was enthralled at the stories he had to tell to pass the time, and each time we got together or made any long distance drives, many more interesting revelations were divulged. Often these many insights were correcting important errors and misprints in publications, I suggested he consider; putting pen to paper, drawing on all the relevant stories surrounding his fascinating career, write his own autobiography.

At this point he was very reluctant, but as there was a clear need to put the record straight, I ventured to suggest a taped interview for the Club archives and perhaps a short article in the Club's AMQ magazine. With Ted's agreement, I then arranged along with Brian Joscelyne ex-editor of our publications to interview Ted at his home and once the tape started rolling the informal session — picking up on his life story initially for background — just flowed unscripted and soon ran out of time, so several more sessions were needed to complete the task.

It was obvious when all the audio tapes were finally transcribed, that we had more the makings of an interesting book rather than a Club magazine article. We persuaded Ted to seriously consider this option and when I offered to take on all the necessary print research and produce the complete artwork for publication, he finally agreed to the undertaking, as long he was fully involved at all times with overall control of the content.



ASTON MARTIN OWNERS CLUB



Bill Collard (ex-Ford), Stuart Bailey and Ted Cutting beside the DB9 cut away display on 6 Sept. 2004 in the Atrium of the new Aston Martin Headquarters at Gaydon.

CUTTING EDGE CONVERSATIONS

THE INTRODUCTION

This book has evolved from a series of meetings with recorded interviews between myself Edward.J.'Ted' Cutting, Stuart Bailey and Brian Joscelyne as interested members of the Aston Martin Owners Club and Heritage Trust.

As the title suggests it has been adapted as recorded in conversation style, totally unscripted and informal, just following the directions of the questions and answers as spoken, therefore it does not run in one complete chronological order but hopefully the deviations and occasional repetition create interest and amusement.

Initially this set out to put on record my early life and first work experiences before I became involved with Aston Martin Lagonda Ltd. and the David Brown Group of Companies, when I moved into high performance automotive engineering.

Although this has now expanded into a kind of autobiography, it has enabled me to clarify some details which have, on occasion, been incorrectly published. It was further suggested to add photos and some of the technical articles I have written on my Aston Martin racing projects, supposedly to enhance the story, add a little more weight, which is something in cars I have always fought hard to lose.

We first arranged to record a few of my observations, thoughts and ideas, when I was 81 and I'm now 85, so this is possibly my last performance on the great scheme of life. So here is where we started recording the views of, well I was going to say, not quite Mao Tse Tung but on those lines.



Ted Cutting with Brian Joscelyne at the start of the of the first audio recording session.

CUTTING EDGE CONVERSATIONS

**THE COMBINED RECORDED INTERVIEWS
AS TRANSCRIBED FOR
AND EDITED
BY
E.J. 'Ted' Cutting**

The main conversation section
relating to the life and career of Edward John Cutting
with photos and images compiled by Stuart Bailey

Where did it all begin?

I was born on the 11th. of October 1926 in a house in Clapham which my parents were leasing from my mother's mother



Ted as a baby with mother Louise.

and my father was at the time running a fish and chip shop for my mother's father who at the time owned many fish and chip shops right across South London, he was a fish and chip magnate if you like and we moved on from there because mum and dad had a disagreement with grandad.

You have brothers and sisters?

I had one brother John, two years younger than me, who was an electrical engineer, sadly he's now deceased, he had worked

in the electrical industry and also for the Institution of Electrical Engineers as one of their senior staff.

Did you both go to the same school?

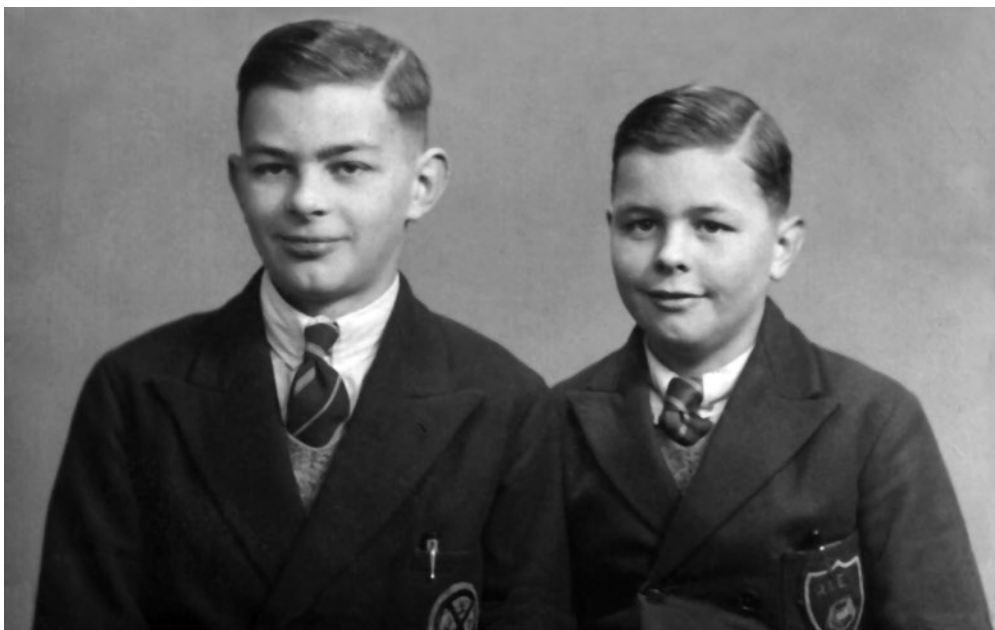
We went to local council schools at first elementary; in my brother's case he went on to a Grammar School and I moved on to the Kingston Technical School by means of a scholarship, where there was a two year course in engineering and building practice.

Did that appeal to you?

It did very much, because I was quite good at drawing and one of my teachers at the Technical School, said that he thought I could make a career as a draftsman.

What were your aspirations at the time of leaving school?

A draftsman was quite adequate at the time. I mean at 15½ it's unwise to think too far ahead — and my level of knowledge wasn't high enough to have any aspirations; my father had been in the motor trade in the early years of the century; also he had joined the Army in 1915 and became driver to General Allenby, the Commander in Chief of the Egypt and Palestine campaigns. While his brother in law had been a senior mechanic and test engineer for Napiers and had worked with S.F. Edge on the famous 24 hour run in 1907 at the Brooklands circuit. In fact just before S.F. Edge went for the first British 100 mph



Ted

John

record in the Napier, uncle Will Brookes hit 98 mph before he was flagged off, to prove that the Napier could do it.

So could he?

Well, 'the' Selwyn Francis Edge wasn't then going to hand over any record to just one of the mechanics! so yes, Napier and S.F. Edge both set lots of the early records.



S.F. Edge in the Napier record breaker at Brooklands.

So basically as a child you had a lot of interest in mechanical automotives?

Yes — my father, as I said, had only gone into the fish and chip business because he married mother, and he was effectively running his own business under the aegis of mother's father who was, shall we say, a very sharp business man and I do mean sharp.

How many shops did he run?

Twelve shops right across south London, and the rules were you bought everything off him, I mean everything which was sold in the shop; in those days, they cooked the fish and chips in beef dripping, the flavour is really something, very different from the oil they use these days — which can all be refined and used in a diesel engine, yes there's going to be a real market for cleaned up fish and chip shops oil right from now on and there's no duty to pay, well for the time being anyway.

Really?

Absolutely!

Good news for diesel owners like me?

Yes, but you need a machine that can cost £2000 or more to clean up the oil before you can use it, so you've got to be serious about this and you will need a consistent supply of fish and chip oil!

You were going to be a draftsman?

That was the idea yes. I went to Kingston Technical School, a two year course and passed out reasonably well, not anything outstanding but through the School they sent me to KLG Spark Plugs.

Like a placement?

No, not quite — what had happened in early 1942 — it was when the KLG Company were looking for a Junior draftsman trainee, which of course was very difficult to find during the war, someone there conceived the idea of taking a lad out of the

Technical School at Kingston, so asked the School who then sent me for an interview.

How old were you by then?

Fifteen and a half. The School course ran over two years and was six consecutive terms, pupils entered in April, the end of August and January — so I went in the April 1940 after I'd won the scholarship in the previous January and, yes, it was quite a worthwhile scholarship. I got all my fares paid to Kingston from Barnes on the train, a season ticket, and I know it cost my parents 30 shillings a term to send me there, that was the fee. There were only 24 places every three months, the first 8 were offered free places and the remaining 16 were offered places at a small fee, depending on their parents circumstances and how well they'd done in the exam, mine was 30 shillings a term and I know at first my parents had to put money aside because the war had then started. Dad was working for J. Lyons and Company and he had the West End as his area/patch for bread and cakes and all that sort of stuff, J. Lyons and Company



The Cutting family in 1939.

were at Hammersmith, Kensington.

They served all the corner houses?

That's right, well the corner houses mostly cooked their own, anyway that's besides the point. Later of course business picked up because people took very little notice of the war — until the bombing of London began — and still went to the West End and then when America came into the war, a change came as the US Military wanted to visit London.

Things changed?

Yes, dad was making over five pounds a week towards the end of the war, between five to six pounds a week which was you know a good wage then, so there was more money coming in.

With the school qualifications were there any other qualifications or just this?

KLG just wanted someone who could draw, so I took along working drawings that I'd done in class, at school, engineering drawings and where I'd got to in maths and other sciences.

Do you get on easily with maths, does it come easy to you?

Not at the time but it did later.

Just going back to the qualifications, I wondered about the type?

I got an Ordinary National Certificate in due course and then a Higher National Certificate, both at evening classes; for my Higher National I did thermo-dynamics, mathematics and applied mechanics for

applications to car suspensions. Then after leaving school in Kingston I joined the KLG Spark Plug Company, I still went to some evening classes but most of my evening class work came after the war, when I was working for Sidney Allard and my early years at Astons.

So this was in a drawing office?

In a drawing office, yes, and among memories at KLG while we were working away in the drawing office in early 1942 — the Americans were now in the war, December 1941 was Pearl Harbour. And so it would be about late spring of 1942, the Managing Director of KLG came through the door of the drawing office with two American Generals, lots of medals on them, one was the top Commanding Officer of the 8th. Airforce and Commander of US Army Air Forces in Europe, his name was Carl A. Spaatz, the other General's name escapes me; they had come to meet our chief spark plug designer, George Schubert, a direct descendant of the composer.

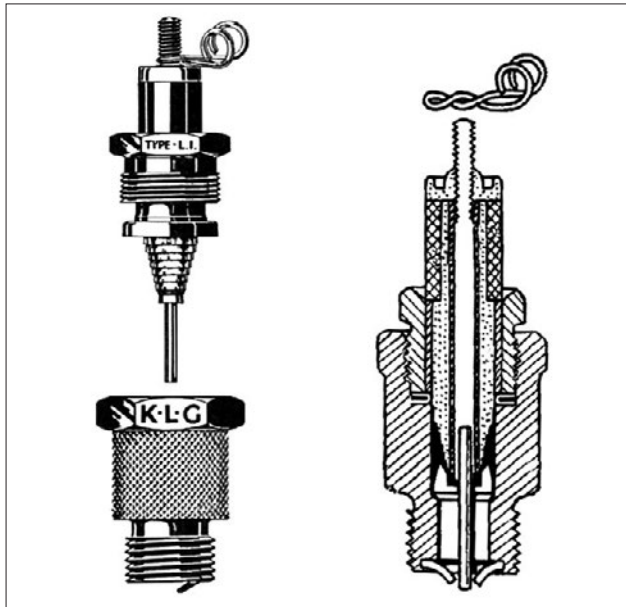
Really?

Yes, and he could sing too!

Music while you work?

No, only the factory had it, not the offices. George was about 6'3" an enormous man, very big and they had a meeting in his office where the Americans told him what the problem was; all the American bombers had never had long, I mean really long periods at full boost in peace time and the spark plugs they were using were now falling to bits, the aircraft that didn't have complete engine failure on all four engines were getting back with only about half of the cylinders in each engine working properly. The spark plugs then had insulators made of Mica, which was quite common before the war even in car engines. Mica is a naturally occurring product, which mostly comes from South Africa, it breaks up into very thin layers, it's quite a good insulator but of course it breaks up and under conditions of high temperature and heavy working as you would be when operating at full boost the Mica insulated spark plugs failed. So they talked to the

RAF and then the RAF sent them to KLG because we were the principal suppliers of plugs for the Merlin engine and we'd also done the plugs for the Rolls Royce R engine that won the Schneider Trophy, that was when Kenelm Lee-Guinness actually ran the business. He sold it to



A very early example of a 1930's KLG Spark Plug as an illustration and a sectional technical drawing.

Smiths in the thirties. so we were owned by Smiths Industries. George undertook to make a new set of spark plugs for the Americans to test and he sketched something out and I got called in and told what he wanted me to do, which was to make the detailed drawings for the body of the plug which was slightly different to the Merlin plug body.

What about the screw threads – the American screw threads ?

They were different, yes, so there had to be special dies and taps, and they were sent down to us while both the American Generals were still there!

Was this was an area where you started to pick up on metallurgy?

Not really, it was going on all the time; you were sort of drip-fed as things came up.

Of course it was part of the learning curve?

Yes, you get a learning curve working in a high tech industry – it was high tech at

the time for aircraft engine spark plugs. I mean the spark plug that was in a truck or a tank was pretty ordinary but we at KLG used the same insulator material for all our plugs, sintered aluminium oxide and it's the second hardest material to a diamond – fantastic stuff.

Expensive?

No, once you'd bought the aluminium powder – there was, I forget the name, a chemical binder, but its only one or two percent in the whole thing and you make the insulator by compressing the powder in a little mould, that was done simply in those days and then the powder mould had a finger sticking up inside it which put the screw thread in the bottom, that is the central bit where the electrode fits in, it's done at that stage and of course its a powder so its oversize, I'll tell you why in a minute. This cylinder which was about four and a half inches long and about an inch in diameter was mounted on a spindle and then the girl machinists had a follower on a special lathe with a tool, one of these super high-tech hard tools, even so the tool wear was quite considerable, that shaped the outside of the cylinder but slightly larger, 5 to 10 percent larger than the final size, and then they were put into boxes, called saggars – just like you make crockery in a kiln up in Stoke on Trent – then the saggars were put into a kiln and fired up just the same as crockery and when they came out of the kiln they were cooled down and they'd shrunk, of course learning how much they shrink in those early days was important as the scrap rate varied enormously, it was sometimes up to 20%, I forget what happened to the scrap but if you got it right your scrap figure could fall to 5%, which of course was very acceptable. So we made a set of spark plugs for a huge Wright Cyclone engine in a B17 'that's a Flying Fortress' and Carl A. Spaatz and his colleague arranged for the plane to fly around Great Britain, it took off from some US airbase they had in East Anglia and flew right up to Inverness on the east coast and back down the west coast and

landed, all under battle conditions, that was you know, vital, and when they landed only one engine was running on all of its cylinders — ours!

So that was good news?

You could say that, well it was good news and the American Generals came back a few days later with the results but they'd phoned them across earlier.

KLG saved their bacon?

We did, yes, or KLG did, George Schubert in particular, and again they met up with George, full of congratulations, and the meeting was held in the drawing office and I heard Carl A. Spaatz say to George and to our Managing Director Major Carrington "We now want a million of these things when can you deliver them?" and Major Carrington said "No hope, we are absolutely jammed out, we're running at three shifts here at Putney Vale and our factory in South Wales is running two and three shifts when they can get staff". The Treforest factory that now makes the Ford spark plugs under the Autolight and Motorcraft names was the KLG secret factory. You know just before the war any company who was essential to war effort — which spark plugs of course are — had to invest, the government put up a lot of the money for these shadow factories and of course in areas of high unemployment and particularly in a spark plug plant in those days. We had a very high proportion of female labour, so it provided work for women in that area and of course the coal mines were opening up with the demand for coal and re-armament, so suddenly South Wales was seeing prosperity, which it well deserved.

How did these million spark plugs get delivered?

Well, what happened was Lease Lend was on and this was reverse Lease Lend and myself with a lad who worked in the drawing office — he was the drawing office dogsbody, you know office boy — normally he worked the print machine making dye-line prints like blue prints but black and white and together we made prints of all

of the plug drawings which was simple enough, three sets, then all the tooling, every single tooling item in the factory that you would need to know about.

Are you talking about drawings of these tools?

Not only drawings of the tools, but specifications, worksheets everything, all three sets of the lot put into three boxes exactly like coffins and were put on three ships, three different ships to go back to America, they all got there which was a surprise because the three were allowances for losing at least one and in less than four months the BG Spark Plug Company were in production. Also two or three of the men from our workshops, chargehands, experienced people who were flown out to America, we didn't put them on the ships they were flown on some sort of cross Atlantic arrangement with the American airforce to help get the BG Spark Plug Company going — three and a half months and they were in production.

Fantastic — very important wasn't it? What name was on these plugs?

It was BG, who got a license from Bosch via KLG.

So it was thanks to KLG?

Yes, so the American airforce by the end of 1942 had ceased to have engine problems and that was not only in the Wright Cyclone but in the Pratt & Whitney as well which we'd made another spark plug for and sent the design to BG.

It was Cutting Edge wasn't it?

Well, a very minor part! What isn't generally known of course is that the whole spark plug technology that we were using for the Merlin engine and which was used for the later stages of the Rolls Royce R engine, was bought complete from Bosch over in Germany and the negotiations, as I understand it, began before 1933 and the technology using Corundite, which was what the insulator material was then called, and was the really important bit, it was bought in its entirety from Bosch in Germany prior to the Nazi takeover of Germany; it would probably never have

been sold otherwise, and because the Lodge plug was developed using a porcelain insulator which was quite good but nothing like as hard or as durable under high operating conditions as Corundite, the sintered aluminium oxide could stand temperatures of a thousand degrees centigrade.

Corundite is a trade name is it?

It's actually a rare metamorphic rock also known as Emery rock, but used as a trade name by Bosch and then later by Smiths Industries — I don't know if it's used at Ford now but it was a trade name at Smiths and KLG. Anyway that's basically my early life and then in October 1944 I joined the Fleet Air Arm.

How did that come about?

It was a natural progression, because I knew it would be sometime soon and I preferred a naval career. I was in a sea scout troop in Barnes in Surrey where we lived and pretty well all the sea scout troops that I knew of round about were involved in an Admiralty scheme which they were particularly interested in, that's because a lot of the seamanship that



Ted (right) in Assistant Scout Master uniform.

would have to be taught to recruits was being learned by us as boys on the river; you know we were not quite thrown in the deep end but we knew how to handle small boats and some of us learned how to sail. All of us could row of course, and were at a fairly high standard of boat handling and repair technology. Aged sixteen I had a special pass issued by the Boy Scouts Association and signed off by the Port of London authority enabling me to take a rowing boat with up to twenty people, right down to Tower Bridge to the Pool of London or up to Teddington lock, which was quite a responsibility for a sixteen year old. I had to be fit as I had to go for a test and show that I knew how to handle a boat, under oars, under River Thames conditions and that I was aware of what the river conditions were like in turning across the tide — a tremendous rip you know, when you get an eight or nine knot tide — you can't row against it in a normal boat, you go with it and I can remember taking crews of other scouts from Chiswick where we had a headquarters at the side of the river. Just before the war my scout troop was given the full use of a 100ft. schooner hull moored at a wharf on the Chiswick side of the river. It was practically a gift — although we had to pay a rent for the wharf, we would be able to raise the money for that — so it was ours; particularly as our headquarters was bombed, we had found ourselves with a ship!

Does this mean you would climb up the mast?

No, there was no mast, it was dis-masted it was just a hull — but I can remember the first job every Saturday when we got there was to pump out the bilge, because the ship was getting old and it had been partly copper shod below the water line — some of it had been removed at some time and the wood was getting old and it took in water even though the planking of the hull was two to three inches thick which was enormous for a yacht.

Was this a troop restoration project?

No, we just used it as it was — anyway the scout troop doesn't exist anymore.

Did the sea scouts have uniforms and badges like real scouts?

Yes they were real scouts.

They were just a different division but they worked in the same way?

Yes, we wore blue jerseys with the words sea scouts on them and hats like the naval ratings, with a ribbon on it with sea scouts printed on. I was very briefly troop leader of the scout troop just before I went in the Navy.

But did you gain all your badges?

I was a first class scout, a keen scout yes. All the right badges yes, these were the ones relevant to me but I had this Charge Ticket (*special pass*) so I had a badge for boat handling.

Knots and rope craft ?

Yes, did those as well but they all come in with other badges, there was no special badges or there wasn't at the time but things have since changed I expect.



Scout group washing up, Ted (centre) in pale shirt.

Were you recruited or volunteered for the Fleet Air Arm?

I volunteered as that was the only way, because I was in a reserved occupation working for KLG Spark Plugs, I was told that I was in a reserved occupation. "Nothings cut and dried" the interviewer who was sitting there opposite me said "Except if you volunteer for air crew, we can't stop you," so I volunteered for the Fleet Air Arm.

And they had welcomed you with open arms?

Yes, I just wouldn't exactly say welcomed, but accepted.

Well you had some skills.?

Yes, so I joined the 71st. pilots course at HMS St.Vincent at Gosport.

How old were you then?

I was eighteen on the 11th October and then on the last Monday in October, I had joined at HMS St.Vincent.

Well you weren't an adult then so did your parents have to give permission?

No.

Then you weren't an adult till 21.

That's right, but I joined. Well, they were calling up eighteen year olds to the army of course, so you know you didn't have a choice. If you weren't in a reserved occupation then you were definitely going to be called up.

What was Gosport like – did you do basic training?

Yes, basic naval training of course, but also some stuff that was specific to the Fleet Air Arm, not a lot, but some and then those of us who passed out above a certain level went to the United States to learn to fly, to be trained by the US Navy and those that were in the second layer went to Canada.

Which layer were you in?

I was in the top layer and we went to New York.

On a ship?

On the Queen Elizabeth, the First.

No less?

Well, wait a minute – what you probably don't know was that the first Queen Elizabeth was converted and could carry an entire American division of 20,000 men in one go, and I was quartered in the first class cinema, which had been totally gutted and had bunks seven high.

How do you get down from the top one?

Well there wasn't enough of us going west, so for more people coming east you just climbed up the bunks, they became the ladder you see.

Did the ship roll?

Yes, well you took a chance on that of course. Mind you they were close enough

together, the bunks were, what, 2ft. wide and the banks of bunks were about 2ft. 6" apart just enough room for two guys to pass one another, and of course when they had 20,000 troops on board they were sleeping on the deck as well.

So for an eighteen year old it was quite an experience?

Yes. I remember we were up on the east coast at Dunfermline in the naval barracks there, that's where we reported to after passing out of St. Vincent. We all reported to Dunfermline and we were there about, ten days I suppose, and then they shipped us over with all our gear to Gourock on the Clyde, the weather that night was bad and we had to sleep on wooden packing cases in a dock shed. Come the following morning we were taken out to the ship, the Queen Elizabeth, where we were then shown where we were all going to be quartered, and we were also told we want you to do a job, we're loading American wounded from the Ardennes and I spent two whole days with my friends, loading American wounded from the Ardennes.



RMS Queen Elizabeth adapted to a war time troopship.

They told you of gruesome stories?

No, they didn't talk — they were all bandaged and some of them later died on the journey — but we were loading them all onboard and the ship then was run by Canadian Airforce, that was internally. They were there for feeding and everything in regards to the troops, as they were the passengers in effect, Cunard with the British Navy were operating the ship and all of us who were navy personnel, once the ship sailed we were added to the naval ratings on board as supernumeraries, so I

found myself with a lookout station up on the bows of the Queen Elizabeth!

You got all the good weather?

No. Because we'd no sooner sailed from the Clyde than we hit a gale and the fore deck of the Queen Elizabeth which was up high like a three storey house above the water on a calm day, well it was coming over three or four feet deep. It was rough and so we couldn't get up there, anyway we had other duties of course in the day and they always found work for you to do but one thing I can remember is the feeding arrangements. We were fed in groups of ten to twelve, you went into the main mess and there were these tables bolted to the floor and the last two guys to sit down went and got a thing called a kidd which was a big tray about 3' long by 18" wide which contained twelve meals in not quite plates but you know circular containers about 2" deep set in the kidd .

Like a square meal?

Well it was a square meal.

Yes but that's how they originated?

Exactly yes. I can remember picking up this thing called a kidd walking over and putting it on the table and saying pork chops anyone — can you imagine the look on their faces, — three guys got up and walked out, the weather was so rough they just couldn't face it! but the remaining nine or maybe seven I can't remember now, we ate the lot. Can you imagine coming from wartime constriction to be faced with lovely pork chops and all that goes with it; well all the food was very good from the Canadians. The ship was only about one third full, although we'd spent two days loading all these American wounded and sundry other people who were coming too. It was obvious that with well over 20,000 people you couldn't have moved and feeding them must have been difficult but we had no trouble at all particularly as we were classed as crew supernumeraries and we were being treated like crew. So we were doing very well, we usually got two and sometimes three meals a day.

This is going from UK to America?

To America, yes and anyway we arrived in New York on pier 92 — the ship had docked if I remember rightly on pier 90 and we moved next door on to pier 92 — which was looking out over the New York harbour and town which was a US Navy and British Navy base, we were all quartered again in bunks about four high in a room on the 2nd. maybe 3rd. floor of this building on pier 92, and of course I picked up glandular fever so I didn't move out with the first draft to the flying school. I went in the second draft, the first draft had arrived when thick snow and bitter cold weather was still around at this airbase called Bunker Hill, Indiana — Bunker Hill named after where the battle was fought during the War of Independence up on the east coast — there was very little fighting in Indiana in the War of Independence, I think there might have some in the North but I can't remember. There we were at the United States naval air station Bunker Hill, in Indiana and we were quartered in very nice wooden buildings with — never really forgotten it — the only time I've ever seen it in my life they had no separate toilets. There were these six water closets arranged in a little room, three on each side so if you wanted to play poker as my instructor suggested, you could be performing your function while playing poker at the same time. I remember this story particularly well because the American petty officer who showed us the bunk room and our arrangements told us this story how he'd caught apparently, some of the American trainees, literally sitting on the toilet playing poker all six of them! Anyway we were stationed there and we had of course, lectures and I can remember one of the American instructors getting up and saying "We were told that we would soon be getting more people from England who had had some flying experience". We knew all about this and we said; "Yes the 72nd. course which will be following us, they have all either gone solo or had a little more flight experience in Tiger Moths but we're the last course that hasn't, all except for one of our chaps". Lofty who got up, he was about 6'4" I suppose thin

as a beanpole he said "I'm a qualified pilot" and they said "Then what aircraft have you flown"? He said "Spitfires"! And there was a deathly silence, of course we Brits knew this, so we all sat there looking round and the American instructor said "What! why are you here"? And this fella said "Well, when I passed out from flying school in England the RAF decided for various reasons, and partly due to my health at the time, that I was not going to join a fighter squadron and they sent me to air transport". This was an auxiliary, where all these lady pilots were with a number of older men who were too old for combat who were delivering aircraft to flying fields.

Like Diana Barnato Walker?

That's right. So he'd flown all of the single engined aircraft that the RAF were using from Spitfires, Hurricanes and Fairey and I believe on one occasion a Swordfish for the navy — anyway it was a hoot because he had put almost 300 flying hours in his book and he wanted to get into some real action, the RAF wouldn't take him in any fighter squadron, so he asked for a transfer to the naval air service (*the Fleet Air Arm*) and got it, so he had wound up with us at HMS. St.Vincent barracks at Gosport, — the admiralty then took him straight on as though he was green as grass, so he spent three months doing all the things we were doing including square bashing.

Were there any Americans on this course?

No we were all English, but there were Americans on other courses at the same time and it was a hoot at the time but of course he went through the flying easily, solo after one hour you know just to check that he really could fly. Of course, he'd been through all the meteorological and navigational stuff. Those of us who were likely to become torpedo bomber pilots, which quite a lot of us were going to be, had to learn navigation in a Grumman Avenger, which was the standard torpedo bomber of the United States navy, also mostly the British navy by then, it carried a full 21" diameter torpedo and the pilot sat on top of the bit with the explosive in it.

How did it get armed?

There was a lever to arm the torpedo.

Before you dropped it?

Yes, but at the last minute! So you had to learn navigation, you had to be able to navigate and it was taken as read that all of us who qualified in America would be commissioned in the Fleet Air Arm, the observer who sat behind the pilot was a qualified navigator. The third man onboard was the rear gunner facing aft, with two guns one on top and one below.



Grumman aircraft launching a torpedo.

Assuming you passed the course?

If you passed the course you were guaranteed a commission, so I would probably have been a mid-shipman, in fact I got measured for a mid-shipman's uniform at one point.

The nearest you got to it?

As near as I got to it, yes.

Did you actually go up in an aircraft?

Yes, we all learnt in the Boeing Stearman bi-planes.

Not the Grumman?



Boeing Stearman bi-plane.

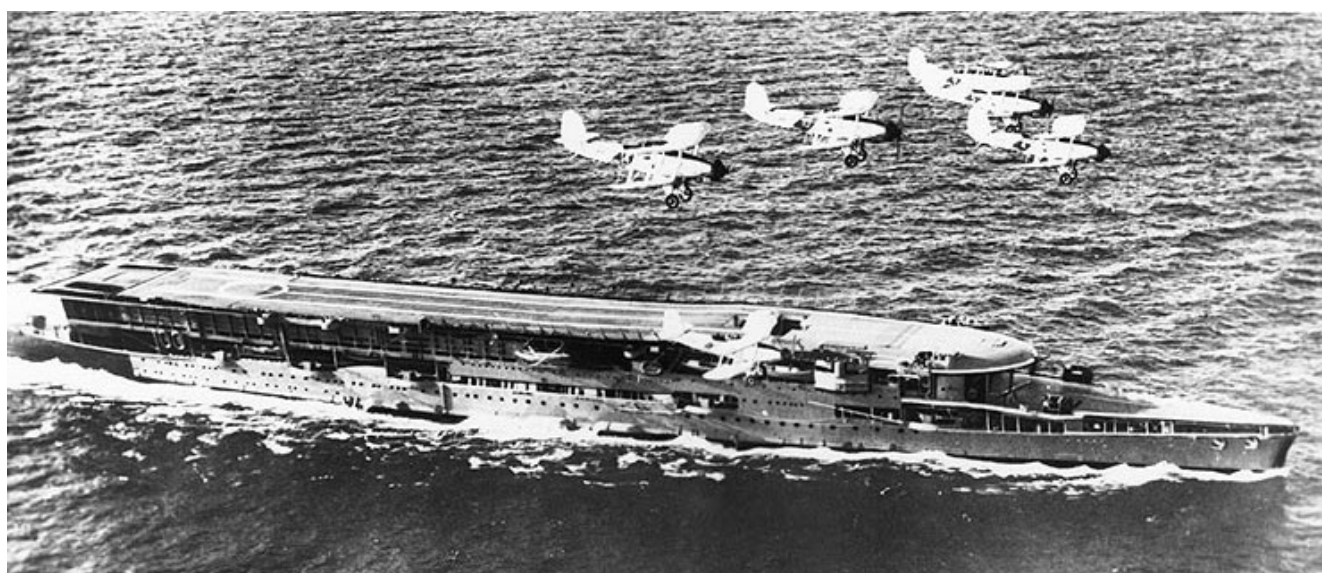
No. The Grumman was a single engine torpedo bomber, I only went in one as a passenger, that was when we were in New York, they took us out to a US navy airfield one day on Long Island and there were all of the aircraft we were expected to fly. I think they didn't want us sitting there twiddling our thumbs so it was sort of let's educate them.

So you didn't actually get your pilots licence?

No, I didn't, I failed. Well I really failed the course to be honest but it didn't make any difference because as soon as the atomic bomb was dropped on Hiroshima and the European war was coming to an end, Japan started to make noises about negotiating a surrender, which happened immediately after the second atomic bomb was dropped on Nagasaki, so the Admiralty then decided it was pointless spending money on training more guys to fly when they'd got almost 300 qualified pilots that they hadn't yet allocated to squadrons, with some 100 or more navy qualified observers already back in Britain waiting to be posted. There were more carriers still being finished off, Woolworth carriers *[the little ones]* and guys already learning to fly from them.

What's a Woolworth carrier?

A Woolworth carrier was a converted merchant ship, most of them were built in America on Liberty ship hulls, and what happened was that the holds were used for spares and living quarters and that, and they made a hanger deck with a soft top deck on it – British fleet carriers had an armoured deck, with armour varying between 7 and 11 inches thick in the high up deck that the planes land on, that's still the case today – American carriers didn't have armoured landing decks. The American carriers had their armour in the deck of the hanger, so that a bomb could go right through the top deck into the hanger but wouldn't go down into the workings of the ship. British carriers didn't want the hanger deck if possible to be affected for fire reasons so the armour on British carriers was in the flight deck.



An aerial view of the Woolworth Carrier HMS. Furious.

Make it top heavy wouldn't it?

Well, not really because the ship was full of bombs and torpedoes for the planes and you name it, there must have been hundreds of tons of bombs in the British carrier — well down — of course the engines were big, because British carriers such as Victorious could certainly do 31 knots if it had to, they were fast ships but normally speaking 25 knots 26 knots cruising into the wind.

What sort of engines would they use?

These were all steam turbines in those days about the size of the Queen Elizabeth's engines but a lot of the Woolworth carriers didn't have turbines, they had diesel engines or triple expansion three cylinder steam engines, some had two of these but they were fast enough, most of the Woolworth carriers the British navy used flew Swordfish aircraft which were marvellous for convoy support and for all sorts of ancillary fleet work. They were also used to attack the Japanese later but most of the Japanese fighting as I remember it was done by the big fleet carriers, which we had a lot of in those days and even some American built half size fleet carriers with their lighter armoured deck. The British built enormous aircraft carriers like the Victorious, Illustrious, Implacable and Ark Royal of course, Ark Royal was lost off Spain but there were about six or eight fleet carriers in the British fleet based in

Sydney in Australia which was where we were going to be based if we'd have gone.

Right, you'd never had to land a plane on a heaving deck?

I've landed on deck, but not as a pilot only as a passenger.

What was your experience of that, what was your impression?

Absolutely terrifying! the first time and was glad there wasn't a second time!

Because the runway keeps moving?

Well, it's not that the runway was moving it's the fact that it looked very small — I can remember the first time I flew with an American instructor and looked down on a carrier deck out in Corpus Christi Bay Texas — went down there just before I was kicked off the training course and there's the carrier he said, "There she is boy, looks just like a tombstone don't she!"

Very encouraging?

He was laughing all over his face, yes!

But he got it down okay?

Well he just touched down and went round again, it was circuits and bumps.

You had to land eventually?

Yes, but that was back at the airbase.

So where did that leave you?

Well then I came home, I did have VE day in New York.

Was there lots of ticker-tape and stuff?

Yes, it was wonderful, anybody in uniform

would have more offers than they could cope with, and I mean all sorts, there was a wide variety of offers, people were very friendly indeed.

Really let go?

Yes there was no need to spend money, everybody would treat you with whatever so long as you were a serviceman, that's even if you were a foreigner, New York was fantastic and then I came home.

On a ship?

We were shipped home as extra crew on a Woolworth carrier that had just been serviced, or had some sort of repairs done in a Brooklyn navy yard, HMS Reaper was quite a small carrier you know.



Woolworth carrier – HMS. Reaper.

Who was on it? I mean were they UK personnel?

Yes, it was a UK ship, we were all Brits on board and I suppose there was, what, about 15, to 20 ex-pilot trainees issued with hammocks, because that's how they slept in the carrier.

How did you get on with that?

Once you're in you're OK, the trick is getting in without falling out the other side.

How many goes before you got it right?

I got it right the first time. We were nose to tail so you had two pairs of dirty feet one pair on either side of you. So we came home and I had VJ day in England.

So you had two celebrations?

Yes, I had VJ Day in England and a good time was had by all. Then in the October of 1945 I had an instruction to report to the Commander of Training at HMS

Daedalus where I was based, Lee-on-the-Solent in Hampshire.



HMS. Daedalus from the air in 2005.

HMS what?

Daedalus. Remember the chap who had invented wings held together with wax, who flew too close to the sun and he crashed.

The Greek God?

Greek mythology, yes, and he was called Daedalus, nevertheless it was known to all naval personnel as HMS Deadloss! It was at Lee-on-the-Solent, anyway that's where we were and I saw the Commander in late November 1945 and he said to me "Cutting, as you well know the war's now over, we're not training any more pilots unless they're in the very last stages of doing pre-action special air fighting techniques". A friend of mine, Bob Reid, who had been in the sea scouts with me and who'd been to the same Kingston Tech School that I had, but was a year ahead of me at Kingston, he had qualified as a pilot in Canada and he was still flying, at first he was a chief petty officer pilot that's because he was trained in Canada and then he was selected and got offered a commission and became mid-shipman and then 2nd. Lieutenant Reid.

Was that the lowest officer rank?

Yes, mid-shipman, and then he was sub-lieutenant in the wavy navy with wings on your sleeve, he looked tremendous in his new uniform, I must say. Bob, he wasn't

demobbed until very late 1947 or maybe 1948 — oh yes he was a very lucky man, he was demobbed before the Korean war, he was still involved with a bit of flying in England and he flew the naval version of the British Tempest, with these great big radial engines, it was a seagoing version of that and the American fighter that the American naval air people had.

Not the Corsair?

No, it wasn't the Corsair, that's the one with the odd wings — the Corsair was a very good aircraft apparently.

Not the Mustang?

No, the Mustang was used by the main American airforce with the Rolls Royce engine. The Mustang was designed for the American Allison engine and had a very poor performance, the RAF said they'd have the Mustang if they could have it with a Rolls Royce engine and of course Packard were making the Rolls Royce engine in America, so Packard got together with North American Aviation who were building the Mustang and put a Rolls Royce in it, and everybody who flew it was raving about it. The RAF ordered I think 100 or 200 planes, PDQ the Yanks were in first with one of them and the Americans soon realised what a fantastic fighter plane they'd got quite by chance, and a really effective long distance fighter with a fuel drop tank under it that flew all the way to Berlin and places beyond that. With the Mustang was the Republic fighter with a big radial engine which had almost the same range but wasn't as good aerobically as the Mustang with the Rolls Royce engine. When they got the bigger Griffon Rolls Royce engine, with two stage supercharging and well over 2,000 horsepower it really took off. Well I'd met a bloke who was flying a Spitfire — I believe it was Mark 9, that had this two stage supercharger engine — he said he was climbing over France and could see over to his left some distance away a Fokker Wolf with a German pilot, who was also climbing and he was overtaking the Fokker Wolf pilot — which again was a very good aircraft — and he waved at him as he passed him.



ALA EJ Cutting 1945.

My engine's bigger than your engine?

More or less yes!

Is that when they had 4 bladed props?

It could have been, these were stories of course that usually came out amongst all the flying people, particularly aircrew like myself who had missed it you know.

Did you meet Fleet Air Arm pilots who had flown?

Not then but I have since I left the Navy. So I came home and I was home in time for Christmas such as it was in 1945.

What was your impressions of Britain at the time?

Britain was moth-eaten, poor and cold, people were hungry but fortunately my dad was working for J. Lyons and delivering food in London, well we never starved. Not only that but he was delivering all J. Lyons food products to cafés, to milk bars and to cafeterias, you know within office blocks and some factories in Soho, canteens and

that, so the opportunities to be dropped the odd chicken or a leg of pork or something else, didn't happen that often but they were there.

Because there was rationing still?

Everything was rationed, I mean after the war bread became rationed — it wasn't rationed in the war — but you had to be sure you could get some bread and so dad was in a fortunate position where he was, I mean it was strictly illegal to have this food stuff, but it was on offer and for a quid pro quo, so there we are, you could not pass it up I mean you could have been, how can I say it, one of those people who wouldn't quite deal in the black market, but in hard times what do you do, you either semi starve or you took it.

Take the advantage?

Yes, I mean there was an awful lot of people who never had the opportunities.

Well the opportunity presented itself?

That's right, yes.

What was the situation at the beginning of 1946 for you?

Well, I had to find a job and I didn't want to go back to KLG. So in November having been discharged from the Navy, I was just simply given a ticket and a paper and sent to Olympia where I was able to draw my demob suit and there were all these, well some old men there with tape measures, so I got a demob suit and a shirt and the other accoutrements, you know a pair of shoes, although of course I had my navy shoes but what I was after was a different pair of shoes.

You were respectable?

I was respectable, I now had a new suit, a demob suit, very natty, and you know I must have been the youngest — of course I was, what, barely nineteen and there I was being demobbed — there's all these chaps who had been in the navy, army or airforce since 1939, all being demobbed with me, yes 1939, there's forty people or so coming through looking at me, saying how come you're here, "Oh I was air crew but I was in a reserved occupation".

Anyway, what happened next was that I heard of a firm through a friend of my father's who had a place in Brixton, near the Oval in South London Kennington area, who wanted a draftsman and they were a firm specialising in building cold rooms and very large refrigerators, free standing for shops and canteens and ships.

Free standing rooms?

Well yes, you could build a complete cold room inside a ship you see, and they were supplying all the materials along with the instructions for doing just that and I went to work for them.

In the drawing office?

In the drawing office, and this firm were making their own refrigeration compressors, you know that in the internals of an industrial refrigerator is a thing like an air compressor — it looks exactly like a one — well it is essentially, only it's for compressing gas. The refrigeration gas, some are an ammonia gas but most are Freon and this was mounted on a little plinth with a steel bottle underneath it that would hold the compressed gas and equipment for pumping it through the refrigerator and the expansion chamber, because you expand the gas and it takes up the heat, remember Boyles Law.

What was the name of the company?

International Refrigerators.

Did you bring all your own drawing equipment, your own set square etc?

Yes, of course by then I had a complete set of drafting equipment which I'd picked up from various places. Anyway I worked for them for about eighth to nine months or so and then they announced that they were moving to Wales — they bought a factory in North Wales — and they moved from these very dilapidated, run down buildings in Kennington, if you were unlucky in the morning and got there early you would see the rats disappearing. Anyway, I saw an advert in the paper for Kelvinator who were over in North London.

American firm?

Well, a branch of the American firm but

they were all English people. I gave them a call and arranged for an interview and went and moved there, I didn't want to go to Wales, so I went to work for Kelvinator which wasn't a success because I didn't get on with the boss and I got the sack — the only time I've ever got the sack — so I was out of work after about seven or eight months at Kelvinator and this would be now the autumn of 1947.

It was a cold winter wasn't it 1947?

Yes very, and I saw an advert in the news paper, draftsman wanted, at the Allard Motor Company.

Had you ever heard of them?

No, but it was in Clapham down in south London, I was living in Barnes and it was a reasonably easy journey.

Were you still living with your parents?

Yes, so it was an easy journey from Barnes, one bus to the Upper Richmond Road at Roehampton and then another bus all the way through to Clapham.

What was your impression when you first got there? Were you thinking a motor manufacturer would be brilliant?

It was very interesting because it was to be working on the whole car, it was building

the Allard car out of parts from Ford.

Legitimately?

Absolutely yes, they owned Ford dealerships confusingly called Adlard Motors, and we always had a good relationship with Sydney Allard, his brother-in-law was the office manager, buying and selling.

Is it true that Sydney only had one working eye?

I believe so, he wore glasses, I wouldn't be a bit surprised. He was very nice man an enormous man well over six foot tall.

Did he engage you?

No, I was interviewed by a chap called Collingridge who'd had a nervous breakdown when working in some sort of a shadow factory as a senior manager and had taken this job as works manager for Allard Cars, which he thought would steady him and get him back on track. He was also a very nice man and he hired me because I'd stressed my KLG experience.

And they wanted a draftsman?

They wanted a draftsman, so I went. The refrigerator activity had been quite close enough to engine work, although we didn't do any engine work at Sydney Allard but all the rest of it was there. Sydney had



Allard at Shelsley Walsh hillclimb.