



Derrick Stone Recollects

12 July 2003

Roger & Sue - This is your copy. I hope
you'll enjoy re-reading it again when
you're as old as I am!

Pop.

INTRODUCTION

Before you read these recollections, perhaps I should say why I have written them. The idea was not mine but Beth's; I would never have supposed that my life was worth writing about. I'd been telling her something or other about my earlier days, and she said that I ought to write up a proper account. I thought probably only the wartime years, which brought me to Wales and where I met and married Betty, could be of any interest; but no, it should start from Day 1, so to speak. Memory is an uncertain thing, and I have had to depend entirely on mine; however once started, I soon found that remembering one thing reminded me of another, and so on. Before long, I was really enjoying what I was doing.

I have tried to keep a fair balance between my work on the one hand and my life outside work on the other. Where I have written about technology it has always been for a reason, which, I hope, has each time become clear, and I've tried to write it in easily understood terms. If the technical bits have made what I have written less interesting, I can only plead that the chemical industry was my livelihood, and an enjoyable one; it was the means to support my family, central to my life. To have rigidly excluded technology from my account would have made it incomplete and unbalanced; I would have found it more difficult to write, and certainly unsatisfying. As it stands, I have thoroughly enjoyed doing it.

I am very grateful indeed to Beth for the original idea, and to Colin for reminding me of some things which simply had to be included but which I'd overlooked. The idea of including some photographs was Margaret's and was absolutely brilliant; and I am very grateful to Francis, who I suspect has done more computer work than he admits to, to produce this final result.

DGHS
12 August 2003

DERRICK STONE

SOME RECOLLECTIONS

1. Early Years: Education

I was born at 44 Broomfield Road, Chelmsford, Essex, on 29 July 1920. I shared this birthday with Mussolini the one-time Italian dictator; this was unfortunate but there are only 365 birthdays to go round. I believe mine was a difficult birth, which may explain why I had no siblings. The Chelmsford home which I remember is not the Broomfield Road one but 29 Sandford Road, to which my parents moved when I was a year or two old. The house was still there when I sought it out in the late 1980's; when we lived there it looked out over a wide expanse of fields to the south, long since covered with hundreds of houses. We lived there until May 1929, when my father who worked in Chelmsford Post Office was appointed Postmaster of Swaffham in Norfolk.

I wasn't sent to school until I was six, which was not unusual then. It was a small private school, just within walking distance of home, run by a Miss Ratcliff, in Springfield Road. She had about a dozen little pupils, up to about age 9 I suppose, and taught us well. It was quite a wide syllabus, including French and history, and I was perhaps better prepared than many when, aged just 9 years, I entered Hamond's Grammar School in Swaffham.

Our Swaffham home was a large mid-18th century double-fronted house (well, most of it) which went with my father's position as Postmaster. The Post Office buildings, built in 1894, adjoined one side of the house, of which one room downstairs and one up also were part of the Office. The rest was ours, and it was a very fine home, with four attics and a cellar! The original occupants were said to be relations of Lord Nelson; he was a son of Norfolk, born in Burnham Thorpe near the coast about 20 miles away. Swaffham post office in my schooldays was a flourishing entity with over 20 staff; it is long gone, and Swaffham's needs are now met from a mere counter in a local newsagent. The old office – and the ground floor of the house – is now shops, which are garish, and look dreadful, a sad sight to me when I took Betty to visit Swaffham over 30 years later.

Hamond's Grammar School was, by today's standards, very small; it was a single-stream school with perhaps 150 pupils. Being so young, I started in Form 1, which was a small class for such as me; the main intake was to Form 2. I consider that Hamond's gave me a very good education, though lacking biology and Latin. German was introduced in 1933, and I was the only pupil who scraped through School Certificate German the following year! Most of the masters were good to very good; outstanding was B.C.Erricker, a Welshman from Aberdare, a born teacher if ever there was one. Another Welshman was I.J. Jones from Llanelly (as it was then spelt), who taught geography and took PT and games – Rugby of course! He and his parents had actually been next-door neighbours to Betty and her parents – she recognized him immediately from one of my school photographs. Erricker taught physics and maths to the senior school, and incidentally woodwork to the juniors for a time. Unfortunately he left Hamond's when I entered Form 6, the very time when I most needed him, as maths was my weakest subject and is much more difficult at sixth-form level. Worse, Erricker's successor, A.J. Berkin, was completely useless – he was soon nicknamed, with cruel accuracy, 'Bilger' Berkin! Betty and I visited Erricker after the war, when he was teaching in Chippenham.

Another master was S.V. Amstell, who taught chemistry until July 1933. He spotted my interest in chemistry before I was 12, and offered to lend me his copy of Partington's 'Inorganic Chemistry' if I'd like it for the summer holiday. (It's over 1000 pages, written 'for university students'!) I was pleased read quite a lot of it avidly, and enjoyed it. Eight years later, in 1941, Amstell turned up at the Royal Ordnance Factory (ROF), Pembrey; which of us was the more surprised to see the other is a good question! After a month or two Amstell moved on to ROF Drigg – quite a change for a Cockney. More about Drigg later.

I had two principal hobbies. I was a keen Meccano boy from the age of about six; there's a photograph somewhere of me aged 8 with a Meccano motor chassis I'd built – I was always trying to build bigger and better chassis, and even bought 'The Commercial Motor' magazine to get new ideas. I've still got over 100 'Meccano Magazines' here from those days; they were very interesting and informative, brilliantly written for their schoolboy readership. – Nearly fifty years later, when working with Derek Carpenter, a colleague 20 years younger than me, it turned out that he too had been a keen Meccano boy. He felt that Meccano had played an important part in developing his mechanical aptitude, leading to a mechanically-minded person and a scientific career. I think he was absolutely right; the same was true of myself.

My other hobby was cycling, coupled sensibly enough with an interest in maps and map-reading. I had my first bicycle when I was 9 or 10, and although Norfolk is not as flat as many people think, it's OK for cycling, and by the time I was about 13, 35-40 miles in a morning, given good weather, was my norm. One day I rode to Wells-next-the-sea and back, about 60 miles total; I was shattered! I kept a record of all the rides I did – routes and mileage – right up to when we left Norfolk. Unfortunately I discarded it many years ago. – I still have the one-inch Ordnance Survey maps I acquired in those days, and have remained intensely interested, not only in road maps but in atlases of all sorts, all my life. Also, come to think of it, I 'discovered' history when about 8 (it must have been a well-written book) and history too has remained a very important lifelong interest.

In 1937 I did sufficiently well in the Cambridge Higher School Certificate examination (the forerunner of A-levels) to be awarded a Norfolk County Scholarship, which enabled me to enter London University King's College (KCL).. At 17 I was just old enough. I went up with Alan Barrett; we had gone through school together and were good friends, always competing to beat each other in school exams. Slightly older than me he went up in 1936, to do Engineering. When I was only 10 or 11 I knew I wanted to be a 'scientist' – I did not then understand how broad a term that was – but when the time came I had no doubt at all that I wanted to study Chemistry.

We found an excellent and very congenial place to live, in a large guest-house in Warrington Crescent, W9, very handy for Warwick Avenue tube station. We stayed there for the two college years before the outbreak of war in 1939. Our fellow-guests were young men and women mostly in their twenties – the oldest was 'wee Colin', a diminutive Scotsman of 34. Even now I can remember them all by name. Several were students – I brought in two of my friends in the second year – but most of them I think must have had office jobs or similar. There were four or five Scots among us, two Irish girls, a Welsh medical student, a couple of Brummie telephone engineers, and latterly two Norwegians. Those two were of course very good skaters, compared with the rest of a bunch of us who once all went to the Wembley ice rink. I was no use at that, but I did try – can you imagine?? We were all good friends, quite a community of our own in fact. There was a full-size billiard table in the basement, which is where I learned to

play: it was very popular, and probably helped to integrate new-comers into our midst.

It was in these two years that I learned to drink (Younger's Scotch Ale), smoke (Churchman's No 1), take the girls out (various), and generally enjoy myself; I was growing up! I remember one drinking companion particularly well; he was one of the phone men called Gordon Booth (how appropriate!), great company, a terrific extrovert of 24, 6ft 4 if he was an inch, and, to pinch one of his own expressions, having a very dark brown voice. – The very last thing which the Warrington Crescent lot did for me (or to me) was to help me celebrate my 19th birthday, not wisely but much too well. The next morning several of them kindly took me and my luggage to Paddington and carefully put me on the right train for home! I never saw any of them again – the war saw to that – though I had later news of a few. Incredibly, my unsuspecting parents seemed not to notice the hangover, though I endured a long car journey with them the very next day.

I didn't have to work very hard in my first year at King's. The work was to a fair extent a repetition of previous studies, as I had to take London 'Inter BSc' before I could start on the desired Honours Chemistry course. I should have been advised at Hamond's to take either that exam or London's 'Higher' not Cambridge; the ridiculous waste of an academic year was entirely the fault of the headmaster, but the details of his folly don't matter. However, in many ways that year was not wasted, because it allowed me more time to enjoy life and experience wider horizons than were ever possible in Swaffham, becoming, I hope, a little less unsophisticated than I must have been. (Students of today are a lot more grown-up than we were in the thirties!) But I did not participate in College life and activities as I should have, having no interest whatever in sport. With the wisdom of hindsight, I have long since regarded that omission as a mistake.

Although, as is clear, I certainly had a good time, I did study conscientiously and diligently, and several of the lecturers have stayed firmly in my memory. In my first year a very good man enlightened me greatly on intermediate algebra. He was a tall lanky Italian, Vincenzo Consolato Antonino Ferraro (yes really!) though even he couldn't get much calculus into my head.

Then there was C.S. Salmon, an excellent but utterly cold lecturer in inorganic chemistry. One day he announced 'Today we will consider the iron-carbon diagram'. This is a very complex subject needing very complex graphical presentation; it is all about steel. Salmon turned to the black-board, and entirely from memory and without a single word, put up the entire diagram. It was a tour-de-force which took him ten minutes to draw; we were impressed, applauding by the usual student method, stamping of feet. He turned to face us and froze the room with a look. Anyone else would have smiled and maybe said 'thank you' – not Salmon.

On Thursdays we had eight hours' practical chemistry, Salmon in charge. He'd arrive at nine a.m. armed with a fifty-box of Gold Flake cigarettes; he never left his little office all day, giving monosyllabic answers, not usually very helpful, to any requests for advice or help. At five-thirty p.m. he'd depart without a word, leaving the empty Gold Flake box on the office table! Every week.

Prof. John Allmand, though no doubt a very good chemist, was a hopeless lecturer (physical chemistry – never easy anyway). He just mumbled confidences to his necktie. Far and away the best of our tutors was the second professor G. M. Bennett (organic chemistry), who had just joined KCL. He was a lucid lecturer, and unlike all the others a

lively personality – you enjoyed his lectures. More of him later. One of the final-year lecturers (physics) was none other than Klaus Fuchs, who was later gaoled for many years for passing nuclear information to the Soviets. A non-personality.

The happy London days came to an end during the summer vacation of 1939, when on September 3rd the Second World War started. The London University colleges were all evacuated to various provincial universities; the Kings' faculties of Science and Arts moved to Bristol. Obviously the situation had been foreseen, and details of this tremendous upheaval worked out in advance, but the university staffs everywhere must have worked incredibly hard, not only to effect relocation of all the colleges, but also to arrange accommodation for many hundreds of students, in time for the autumn term. As far as I could tell, it all worked perfectly.

So it was that I spent my last university year in Bristol. Life there was quite different from that which I'd had in London; here we seemed to be almost entirely a student society, with little contact with other Bristolians. Some of the latter evidently resented our presence; they complained to the Bristol Evening Post after four of us, at a variety show at the Hippodrome, applauded in our usual way. I wrote a reply, which more than four of us signed, and it was printed; the Kings authorities put up a notice mildly disapproving of our action, but that was all.

In the first few weeks in Bristol I think a fair number of students changed digs to be with their friends of the previous year. I moved to join Lewis Freeman who was on the same course as me, and Alan Tout from Hamond's – and Warrington Crescent – who came up a year after me and was also doing Chemistry. There were three others in the same house, and the six of us quickly settled down to a happy *modus vivendi* together.

For four of us Finals were now only a matter of months away, and the pressure was on. We confined our relaxation to a rigid routine; we allowed ourselves Saturday afternoons and evenings free to do what we liked, usually ending by helping to reduce Bristol's reserves of beer. (Never by drinking George's though; their trademark was a dray horse, which said it all). Our noses were back on the grindstone again on Sunday mornings; but at about 12 o'clock two of us (we formed three pairs who took this chore in turns) would look at each other, nod, and silently depart for the 'local'. Here we would have a pint (would you believe for five old pence), eat a few pieces of the free cheese which was always on the bar, perhaps try our skill on the ten-pin thing in the corner, and then return home with a sufficiency of flagons for us all to enjoy with Mrs. Cool's excellent Sunday lunch. (How did she do it despite the rationing?) We resumed study – we really did – for the afternoon and half the evening, and then played Mah-Jongg, the very addictive Chinese wall game, sometimes staying up till 2 a.m.

By early summer 1940 Finals were imminent, I was revising frantically, and now felt under enormous though self-imposed pressure. I still remember saying to two of the others that I now hardly cared whether I passed or failed, I just wanted Finals over and this pressure off! They agreed, and it was a relief of sorts to know that others felt as I did. I had already decided that I really did not want to continue academic work for a higher degree, not even one year for an MSc., never mind two for a PhD. So I went for advice to George Bennett, a very approachable man (and, as I've said, an excellent lecturer; he left KCL later to become Government Chemist, a great loss to the College). He told me that he was in regular contact with a Royal Ordnance Factory making explosives at Pembrey in South Wales; would I like him to give them my name? Yes please, and thank you very much!

Towards the end of July I received a letter from Pembrey, engaging me as a Shift Chemist at a salary of £260 p.a. (wonderful affluence!); I was to report there on August 3rd 1940. The letter added that as my appointment was without prior interview 'it will be provisional in the first place'. It must have remained so for the whole 6½ years I worked there – I was never told otherwise. About the same time as I heard from Pembrey I got a postcard from Prof. Bennett congratulating me on getting a 'First'. No-one could have been more astonished than I was, getting a First without answering any questions on thermodynamics! (That was for a very good reason – my calculus wasn't up to it!). The Prof's card arrived in nice time to be a wonderful birthday present.

Back to 1937 for a moment. Just after I went to university my parents moved from Swaffham to Calne in Wiltshire – a bigger Postmastership for my father. No house went with this position, so my parents took a newly-built house at 355 Quemerford, a mile and a half from the centre of Calne. Swaffham, and the house there, had a lot of 'character'; Calne and 355 had not. Swaffham must have been a very happy period in my parents' lives, and I daresay Calne was something of a disappointment to them. Salary must have been the reason for moving there, but my father never confided that sort of information to me. Anyway, going to university was my first step in leaving home and, though I remember 355 clearly, I never really looked on it as my home.

2. The War Years: Pembrey, Betty

I duly travelled from Calne to Llanelly, and found 'digs' in Felinfoel Road. Next day I took the bus to the Pembrey factory six miles away. At the gate was a large notice 'DIM SMOCIO', no smoking; entrance was through a small building occupied by the War Dept Constabulary. They were responsible for works security, and all tobacco and means of ignition had to be deposited there. I was taken to the main Administration Office, a lovely light airy building, known as A.1, which dated from the first War – Pembrey had an explosives plant then, too. Here I met Dr Rogan, who was Chemist-in-charge Acids. He did not strike me as an easy personality (I'd never met any Liverpool-Irish before!), but then I was very young and no judge of people. I never liked him though, and nor did most other people. Sharing the same office was Mr. Cox, Chemist-in-charge TNT, a very different type. His path and mine crossed repeatedly over the next 30 years.

The plants I was to learn about were sulphuric acid concentration and nitration-acid mixing, in buildings known respectively as P.3 and P.6- P stood for Process – and A for Ancillary. My 'teacher' – really I need a different word, Squeers perhaps – was a crusty Yorkshire man named Bradley. He was probably pushing 60, yet it never occurred to him that it might just be a good idea to make young newcomers feel welcome at Pembrey, and I did not enjoy the spell with him. This inauspicious beginning proved happily brief, only 2-3 weeks I think. Things then changed greatly for the better – Bradley went off to ROF Drigg and I went on shifts with a young chemist called Ivor Hughes.

Let's get Drigg out of the way first. It is a village on the Cumberland coast near Whitehaven, and was the site of the next TNT factory after Pembrey. It started up towards the end of 1940, and a number of staff went there from Pembrey. So Drigg often cropped up in our conversations, being generally regarded as very remote, which it was/is, and not a welcome destination. Garfield Hughes, who was at KCL with Lewis Freeman and me (another 'First' incidentally) was one of those who went to Drigg from Pembrey. However, I mention him for another reason; after the war he entered the

nuclear power industry, and many years later was on TV in a programme about nuclear accidents. He told us about an early one, which doubtless was kept quiet at the time, in which he played a central and, though he didn't say so, a very dangerous part. It must have seriously damaged his health – he looked desperately ill, and I really thought not long for this world. The last TNT plant was built only five miles from Drigg at Sellafield; the whole world knows that name, but I wonder what became of Drigg.

Ivor Hughes was a very nice chap to work with. He was two or three years older than me, from Llandinam near Newtown, and had been a teacher for a while (and a lover of good music) before joining Pembrey some months before me. Now I was on MNT (mononitration, the first stage in making TNT from toluene) in buildings P.11 and P.14, plus P.6 as before. I lapped it up, learning fast and really enjoying the job. And I didn't have P.3 anymore, which pleased me – the atmosphere there, laden with sulphur dioxide, was a bit hard on my virgin airways! In no time at all, Ivor was moved over to P.3 etc., and I was on my own on shift. Things moved very fast in wartime; when I had that talk with Prof. Bennett I never dreamt that I'd be given responsibility so quickly. (We should remember that Guy Gibson, of Dam Busters fame, was already a twice-decorated Squadron Leader by the age of 25). A year or so later there was a mishap in P.3, one of the 12 units failed, for which Ivor was blamed – and transferred to Drigg. It looked very like a punishment; general opinion was that it was very unjust, and that the failure was a normal unpredictable equipment failure. I never met Ivor again.

Lewis Freeman, whom I have mentioned before, joined Pembrey a fortnight after me, and came to the same digs. In the autumn we moved round the corner to Mrs. Davies in Hedley Terrace; she was a lovely landlady who treated us as if we were her own sons, except we were always Mr. Stone and Mr. Freeman, as the conventions then were. She had a son and daughter at home who were a few years older than us. For a long time Lewis and I worked the same hours, which was fine, but in early 1942 I was put on a different rota. Of course Mrs. Davies could not easily cope with our different hours, so I moved out, to a dear old soul Mrs. Allen, who lived quite near Betty's home – Betty and I had met in the previous autumn. Mrs. Allen wasn't quite sure what to charge me, so I told her I'd been paying 26 shillings a week (£1.30). Straightaway she said "Oh, I'll do your washing as well for that!" As I said, dear old soul.

Soon after settling in at Hedley Terrace, Lewis and I bought a car, a 1929 Austin 7, price £10! It was a good little car, never let us down, and we must have been mad to sell it later to Tom Hughes, another shift chemist, for a fiver. (His mother objected to him parking it outside their home in Pontypridd – can't think why). The replacement we got was a BSA open-top 3-wheeler, which we thought sportier. This must have been one of the very first front-wheel-drive cars, with beautifully simple universal joints, made of fabric, to drive the front wheels. It had a big V-twin air-cooled engine on which you could have fried an egg. It was a bad mistake; one day it dropped a valve into the cylinder, with dire effect on the valve, bent nearly into a circle, the valve seat, and especially the piston! I managed to get a second-hand engine somewhere, very cheap, and Eric Pudner, who was a shift foreman and a dab hand with cars, was of terrific help in installing it. But that BSA gave more trouble, and we soon got shot of it – yes, someone was willing to buy it – and finally got a 1930 MG Midget two-seater. That was OK and good fun to own. Later on I bought out Lewis's share.

To revert to the job. By November 1940 I'd been moved to three of the six TNT nitration buildings – Tom Hughes had the other three – where MNT was converted into crude TNT using very concentrated additional acids. This was a continuous countercurrent process – with sixteen consecutive nitrators – which could give problems

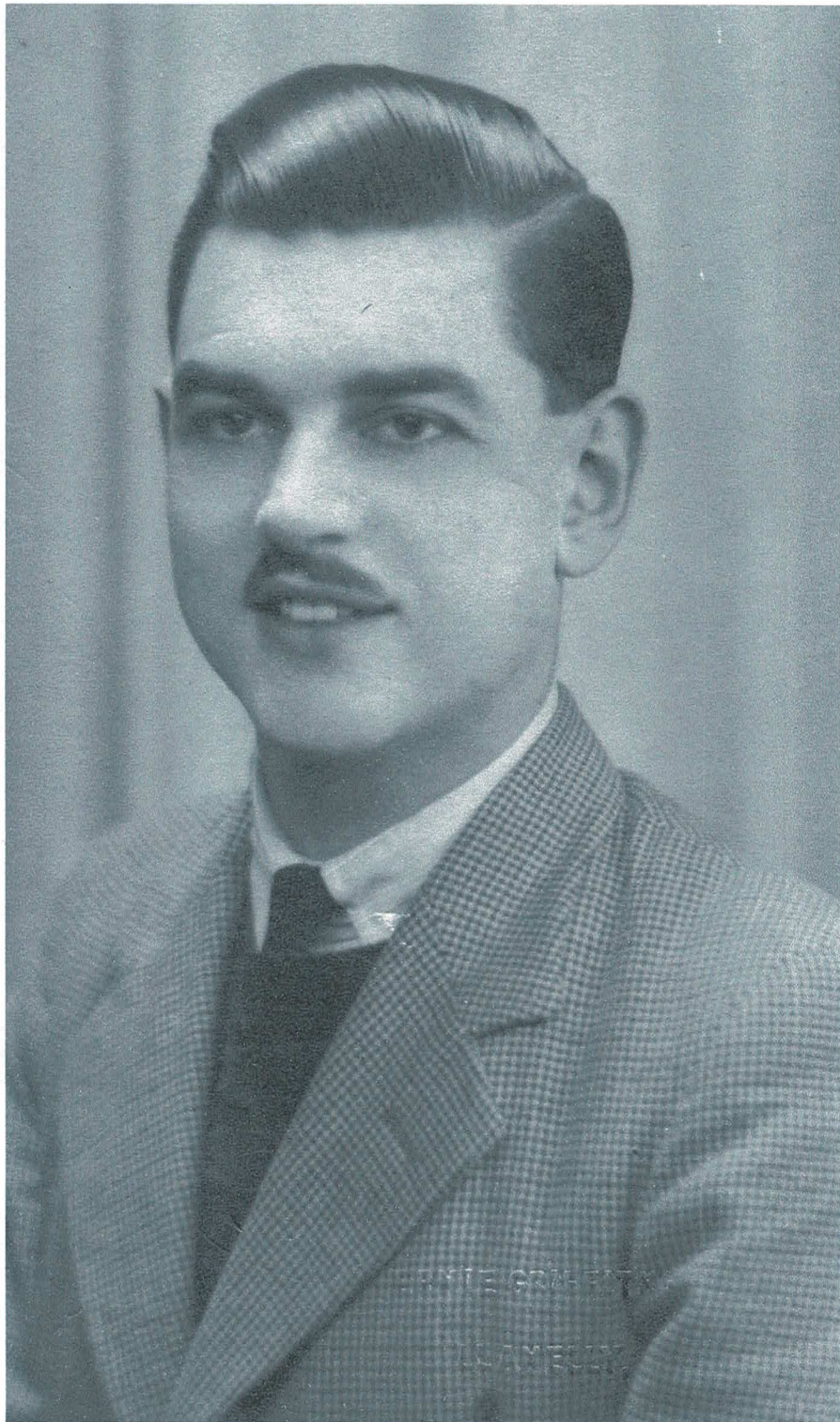
if conditions weren't correct. One morning P.21, one of my buildings, was certainly in trouble, seriously curtailing output. It seemed likely that the nitric acid in use was not as concentrated as it should be (96%). So I took a sample in a large test-tube to test it. Unfortunately the steel-grid floor was wet and oily because of the problem; I slipped and fell backwards. My face, and especially my throat, received the whole tubeful of acid. Acid of that sort of strength is brutal, and though I drenched myself at once with water, it was extremely painful. I am very lucky to have kept my sight – there were small acid burns visible on both eyelids afterwards, which shows how fast instinct shut my eyes. This put me in Llanelly Hospital for about three weeks; I was discharged in time to go back to Calne for Christmas, and I went back to work in the new year 1941. Eighteen months later I underwent two spells of plastic surgery at Park Prewett Hospital, Basingstoke, by Sir Harold Gillies. While there I saw some remarkable work being done on men from the armed forces who had been badly burned or otherwise injured – rebuilding faces or hands for instance. One chap's hand was joined to his tummy for weeks in order to produce a new thumb for him. Some time later I had deep X-ray treatment at St. George's Hospital in London, to soften the hard cheloid lumps on my throat which remained after the surgery; in time they vanished, leaving only the scars which I still have. When, many years later, I told Colin of that X-ray treatment, he was horrified at the risk of cancer it incurred. But I'm still here and OK thank goodness.

In September 1941 there was a party in the 'Coasting Pilot' in Burry Port – someone's birthday I think, I can't remember whose. There must have been 30 or more people there in the big room upstairs, mostly plant chemists and girls from the office. It wasn't long before I noticed a beautiful girl sitting quietly with two others near the end of the room, near the door. I had to meet her. I soon managed that; she was really nice, and we enjoyed each other's company for the rest of the evening. Her name was Betty Evans. When the party was ending I asked her where did she live; she told me Llanelly, so we went back together in the MG. With Lewis driving it (somehow) it was something of a squeeze! And that's how our lives came together. We very soon started going out together – to the cinema or meeting friends in Llanelly, or at dances in Pembrey Village Hall. I was no dancer apart from the hokey-cokey (!) but we went and enjoyed ourselves anyway. We had a few evenings in Swansea; we enjoyed having the MG for trips out of Llanelly (much nicer than the bus), which sounds very modest use, but it was all we could do on the scanty petrol ration. A little later we could get no petrol at all – but here's a wonderful story.

The last car journey we did was just after we got engaged and I took Betty to Calne to meet my parents. Just after Port Talbot we stopped at a tiny garage to use up my very last petrol coupon. In chatting to the owner I must have said I thought this fill-up would just be enough for me to take my fiancée to meet my parents. After putting in the petrol he said "I've put in two extra gallons to make sure you get all that way OK". "But I haven't got coupons for that" I said. He replied "Never mind, don't worry about that". That was a very, very kind-hearted action, against the law, from a man perhaps with children of our age, who wanted to help this young couple whom he didn't know and never met again. And all we could do was thank him profusely and pay. I remember exactly where that little garage stood and could show you the spot today.



Betty



Derrick 1942



Derrick and Betty, November 28, 1942

1942 is in my memory as an endless happy sunny summer; of course it couldn't really have been like that, but that is how it seems. We spent as much time as we could together; if I was on mornings or afternoons we'd meet in the little canteen opposite A.1 for 20 minutes of her lunchtime, then I'd get back to the plant office in time for the shift changeover at 2 p.m. That summer was of course interrupted twice by the plastic surgery at Park Prewett (we wrote to each other nearly every day!)

On November 28th 1942 we were married in Llanelly. Betty's brother John took the service – as I knew he was a minister I suggested it – assisted by her parents' minister (Welsh Wesleyan) and the Hall Street Church man (English ditto). So there were three ministers, and also three witnesses instead of the usual two, as my father for some reason wanted to be a witness too. You could say it was thoroughly done. We spent our honeymoon in London.

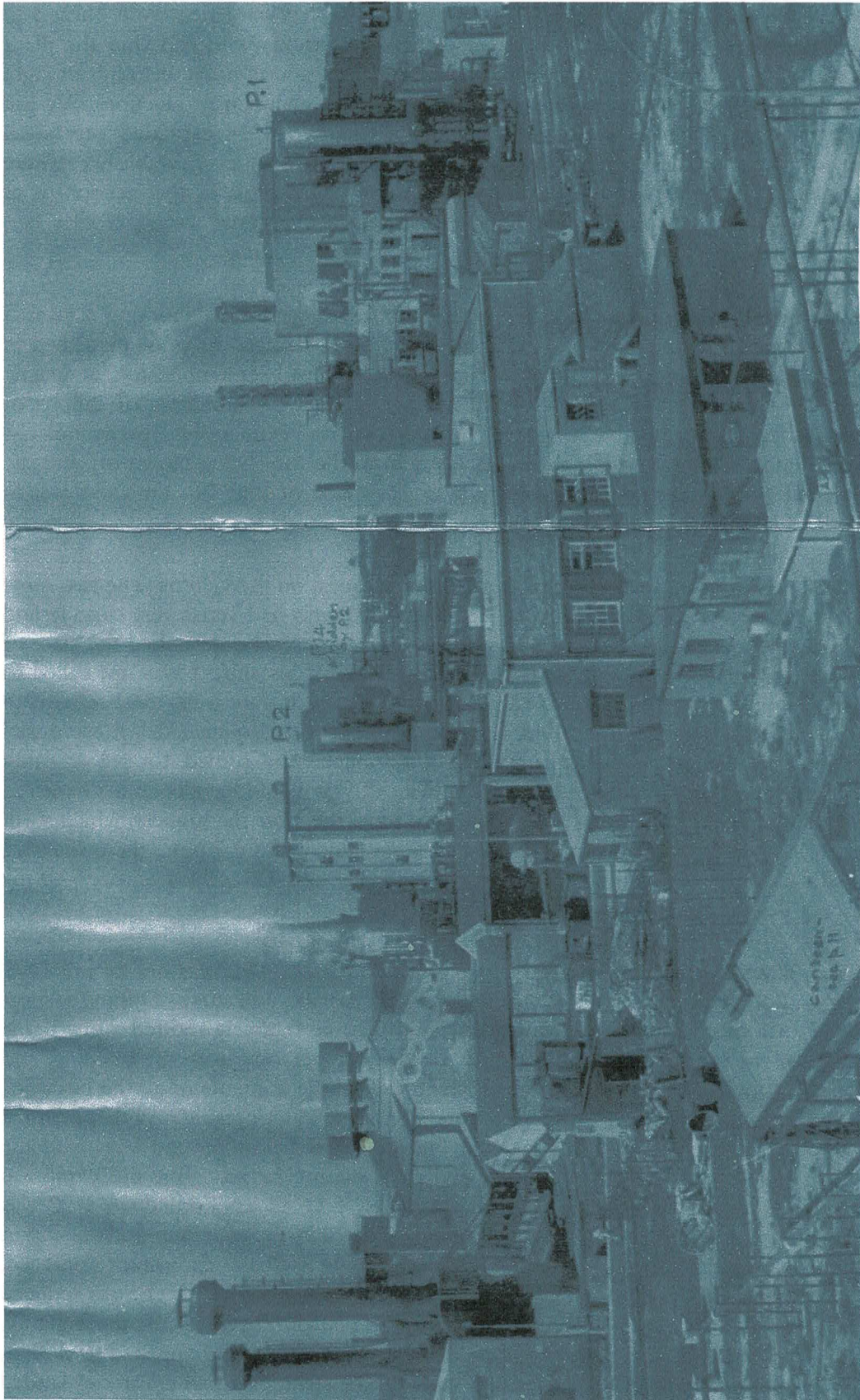
Occasionally, if I'm down that way, I've driven right past the "Coasting Pilot", and half a mile later past Tan-y-Bryn (same name but not factory bungalows anymore; see later). All my wonderful memories come flooding back, and they mean more to me than I can say.

Going back a year, in November 1941 I was back on MNT again, when we had a serious explosion in P.14. This was a toluene vapour explosion and fire, not a high-explosive detonation, but the effect was if anything worse; two men were burned to death. I had come on shift at 10 p.m., relieving Abe Simons who had shut the plant down an hour earlier owing to an air-raid warning. (There was no actual raid, though; not long after this we began to ignore such warnings to maintain production). We got the All-Clear at 11 p.m. and all the plants were restarted. P.14 exploded very soon afterwards; despite a thorough investigation the exact cause was never established. There is an account of the explosion in a book by Ian Hay, but in places that account is at variance with my own recollection, and in one place is certainly wrong. To be fair, though, so much happened so fast, I can't be sure about everything.

I was 40-50 yards away when it happened; I saw huge flames shooting skywards from P.14, and a processman rushing away, engulfed in flames; the poor man died in hospital a few hours later. The other victim, 'Yanto' whom I remember, fought against his burns for nearly a fortnight. The fire was intense, fed by hundreds of gallons of material at least as flammable as petrol, but even so was extinguished pretty quickly. The building wasn't very heavily damaged, apart from the roof being blown off, but the heat melted a lot of the process piping which was made of lead. No time was lost in getting P.14 back into service; it took only a few weeks.

All of us who were involved had to attend the inquest on the victims. The two most important witnesses were my foreman Bert Williams, who had acted very quickly and courageously (he was awarded the B.E.M) and Abe Simons, who described the state of the shut-down plant as he'd handed it over at the end of his shift. I was not called to give evidence, to my surprise, but really Bert had covered it very well. Abe refused to swear on a Bible, demanding an Old Testament. This caused quite a delay; eventually they found a Seaman's bible, whatever that is, which Abe settled for. I've often wondered if he made this fuss purely for the hell of it - it would have been in character, but you can never tell. - Betty had promised to meet me after the inquest, which went on much longer than we'd expected. When at last it ended, about 7 p.m., there she was, still waiting in the cold at the corner of Stepney Street and Town Hall Square. In my mind's eye I can still see her waiting there.

The following autumn there was the explosion in P.22. This was one of my TNT buildings, though not on my shift; I think it was Arnallt Williams's. During a short stoppage for a mechanical repair, the chargehand George Barkway spotted a tiny flame from one of the sixteen nitrators. Instantly, he cleared everyone from the building, and then, outside, pulled the emergency lever which caused the contents of all the nitrators, and separators, to run out into large 'drowning ponds' of water outside. All that material was supposed to reach the ponds via four big pipes just below ground level, and the whole lot would have been safely drowned in a minute or so. But the explosion occurred in one of those pipes during that minute. Like all TNT buildings P.22 was completely surrounded for safety within a high embankment; everyone got outside in time and no-one was hurt. I don't recall that the building itself was extensively damaged, but the battery of six big stoneware fume absorption towers, 20 feet high, was reduced to a great heap of little bits. There had been a high platform built against the building, carrying 6 or 7 tanks holding 4-500 gallons each; I don't know what happened to all that, except that I found probably the heaviest tank full of strong acid where it had landed halfway up a slope a good 50 yards away from P.22! - As with P.14 the year before, P.22 was restored to use remarkably quickly; it was one-sixth of the factory's capacity, and much needed.



ROF Pembrey Acids Section, in 1945, seen from Building A.1
(TNT, Tetrayl, and A/N Plants invisible, up to a mile away)



There was a tragic sequel to P.22. Three months later, a bus taking the nightshift home to Llanelly somehow left the road and crashed down the steep bank at Pwll. George Barkway, who had handled the P.22 incident so well, was on that bus and was killed. He had a daughter Barbara whom Betty knew in the office.

In the summer of 1943 my parents came to Llanelly for a few days, and I managed to get permission to show my father round the factory, for him to see where I worked. As I've said, he was a Postmaster, a typical civil servant, with no knowledge of science (I don't suppose he'd ever been inside a factory before) so it was all quite over his head. So..... On each shift a proportion of purified TNT was run out while still molten into trays some 20 feet long but only about an inch deep, where it was left to set like so much toffee, to be broken up when cold. (Most of the production was processed by more sophisticated means). I timed our arrival perfectly, just when two processmen, working from opposite ends of the tray, began hitting hell out of the TNT with wooden mallets, to smash it up so it could be packed into bags. Less than a minute of this was enough for my father; he couldn't get out of the building – and the factory – fast enough! No use me telling him it takes far more than that to set TNT off – he was taking no chances, and had seen enough of ROF Pembrey, thank you very much!



Llanelli, 1945

Up to early 1943 I'd been switched repeatedly between MNT and TNT according to need, and I'd loved it. I was working for Cox, not Rogan and now I asked him whether I could be switched progressively from plant to plant in the factory, in order to gain the widest possible experience. My request was very well received, and before long I was transferred to the Tetryl plant. Tetryl is a different explosive from TNT (trinitrotoluene); it is N-nitro-N-methyl-2,4,6, trinitroaniline for whoever wants to know, and that was a most interesting job, both chemically and processwise. People who worked on tetryl all turned yellow, some worse than others, and fair-haired people were more vulnerable to dermatitis than dark people. I had no problem with that, but even my feet somehow became a bit yellow. Roger Blamire, a Scottish chemist who'd been on tetryl at Bishopton before coming to Pembrey, told us of a colleague there who had no trouble himself - but 'his wife took dairmatitis but he wouldna tell us where!'

My next move, early in 1944, was to the nitric acid plants P.1 and P.2. I can only describe these ammonia-oxidation units as technically beautiful, the design was so well-thought-out and so elegant. At the core of the process, to make it work at all, was the catalyst, a pack of about 30 layers of platinum gauze, some 30 inches in diameter. It weighed over 6 lbs - a lot of platinum - and was worth £3000, at 1944 values don't forget, about six years' salary for me. One nightshift a spare gauze pack which was soaking clean in acid in a supposedly locked small building, was stolen. It was never recovered; obviously it went to the black market. The foreman responsible for its security lost his job- funnily enough, I never thought him much good anyway. - The acid produced by the oxidation units next had to be concentrated up to the required 96%; there was one old chap on that part of the plant who spent the whole war 'consecrating' the acid!

My last plant was the one making ammonium nitrate - A/N. After a few months on shifts I spent my last year in charge of the plant on days. On VE-Day (Victory in Europe) 8th May 1945, we ceased making TNT and tetryl; everything I've previously mentioned was shut down for good. But A/N is also an excellent fertiliser, so we continued making it, for a number of years. We supplied all we could produce, 1000 tons per week, to UNRRA, the United Nations Relief and Rehabilitation Association. (A/N on its own, like TNT on its own, is virtually impossible to detonate under ordinary conditions though we shouldn't forget that, under rare conditions of very large amounts and undue temperature, there were great disasters at Oppau in 1921 and Texas City in 1947).

The A/N plant had two ammonia-oxidation units, as did P1/P2, but while the latter's units were by Cyanamid, the A/N ones were by ICI and weren't as good. The process generates a great deal of heat (equals money) which the ICI process wasted; Cyanamid units had boilers. We got hold of two such boilers and installed them, a major job. Came the day to start up the improved plant. This was always the chemist's personal task - in this case mine - because of the value of the platinum; normally it was straightforward. I'd start a small flow of ammonia and watch the gauze through a little "sight glass" waiting for a little patch to become just red hot. Then, as the patch began to spread, I'd use my judgement to gradually increase the ammonia flow, watching the gauze like a hawk. In 20-30 minutes we had reached the full rate with the whole gauze at bright red heat.

But this time it wasn't like that. Long before I'd got anywhere near full rate, the entire gauze suddenly flashed to white heat - over 1200C - possibly risking melting the platinum. Shut down PDQ! Try again; very careful with the ammonia. Same thing. After a third attempt my nerve failed. So I phoned John Launder on P1/P2 and asked

him to come to A/N and have a go. One try was enough for John - he didn't want the doubtful distinction of wrecking all that platinum - clearly we had a big problem. The next day I had a brainwave: a new safer way to start up, using a tiny separate bit of platinum gauze. Rogan pooh-poohed the idea, very helpful, so I went ahead anyway and had a simple change installed to try out my idea. That same afternoon all was ready - and it worked like a dream! I heard later that the idea was taken up by other plants, and was told that I should have patented it. Never even thought of it - to me it was just part of the job.

In wartime the normal working week (48 hours then) was sometimes affected by necessary overtime for urgent work, and of course by shift working, all of which we took in our stride. People of military age who were doing 'essential work' were classed as being in 'reserved occupations' - myself and my colleagues for instance - but the RAF did try to get me in 1941, cancelled with under 24 hours to spare. (I was very worried about that - but never about making explosives). Inevitably there were all sorts of shortages, notably food rationing - if you had a meal out, i.e. off ration, it was limited to five shillings (25p.) There were air-raid precautions and a rigorous blackout (hence torch batteries were scarce), no petrol after early 1942 - and not much before - and so on. But we were young and high-spirited; we thoroughly enjoyed our leisure, and didn't let these things trouble us. I don't remember pubs ever running out of beer, though they must have, but I do remember cigarettes becoming nearly unobtainable in late 1940 - never afterwards. Nearly everyone smoked in those days (a shilling, 5p for 20); it was a social courtesy to offer someone a cigarette. I suppose cigarettes were thought so necessary for public morale that no shortage was allowed to recur. A favourite haunt for many of us in Llanelly was the Stepney Hotel, a nice place for a few drinks. That reminds me; one evening some yobbo was being quite offensive in the main hall, where there were always many customers, and had already been told to behave himself. In that hall there was only a little 'hatchway' bar, no door. Maloney the landlord, never a man to mess with, vaulted clean over that bar and, hardly stopping, threw the offender ignominiously out into the street. It was spectacular, a joy to behold! - At least one 10pm shift changeover took place in the Red Lion in Pembrey Square (still there). Lewis and I had gone in for a quick half before the nightshift, when who should walk in but Abe Simons, still on duty, to hand over to me there so he could have a pint before closing time!

I hasten to add that we didn't spend all our leisure drinking! A main feature of life in those TV-less days was of course the cinema; it was in fact the golden age of the film industry and of many famous film stars. Llanelly had five good cinemas - but no theatre organ, the nearest was the Plaza in Swansea. Programmes were always of two full-length films, plus the newsreel, a few advertisements, and if we were lucky a cartoon. We'd go about twice a week; programmes were continuous from early afternoon. At the end of the evening everyone stood for both the Welsh and the English national anthems, and it was extremely bad manners to leave before they were finished. - The radio - sorry, at that time it was 'the wireless' - was of great importance too, not only for entertainment, but also as an extremely important means of communication for news and much other useful information.

All the foregoing is not to suggest that we didn't worry about the war; of course we did. No-one could ignore the endless bad news of 1940 to 1942 - for instance the fall of France and the Low Countries, the terrible shipping losses, the bombing (but we managed to stop that) and the fall to the Japs of Singapore. Swansea was bombed in February 1941 - I saw the fires clearly from Hedley Terrace - and the damage was great. Llanelly was never attacked, but the ROF was attacked by a single bomber in July 1940,

with only trivial damage. There wasn't any good war news till late 1942, when Montgomery defeated Rommel at El Alamein. I well remember the day the Normandy landings began in 1944. Betty and I were having breakfast when the news was broadcast, a few hours after it started. I suppose everyone felt anxious about its success, but like Alamein it was a great boost to morale.

Very early in the war all road signposts and place names were removed, more as a precaution against parachutist invaders than against invasion by an army; vulnerable coastlines were heavily obstructed against the latter.

In 1940-41 housewives were asked to give up all their aluminium saucepans etc to help provide material for aircraft production. Many jobs previously done by men - now in the forces - were taken over by women. At Pembrey, halfway through the war, we replaced the entire male crew who made the steel drums for packing A/N by women, and they were much better workers! Many young women joined the Forces - the ATS, the WRAF, and the WRNS - and the Land Army (agriculture). There was also 'Direction of Labour' i.e. people were told what job to do, and where, and could not leave it without official permission.

People were encouraged to 'Dig for Victory', to grow lots of vegetables to keep down imports. Shipping was absolutely crucial to the war effort in many ways, and I've already noted the dreadful losses, sinkings by German submarines. Bananas and oranges vanished, children didn't know what they were, but orange concentrate was imported for the health of little children. Ration books were issued to everyone for meat, butter, cheese, etc - very small amounts too. We had a much more basic diet, but it was well-balanced and completely adequate; it has since been stated that the nation's health then was better than before or since (no junk food!) When Spam arrived in 1942 we thought it was marvellous. Clothes were also rationed on some sort of 'points' basis. Most people today weren't even born then, so I thought it worth including these notes, however inadequate. Various cautions appeared everywhere: two examples will do. 'Careless talk costs lives' in pubs etc, and 'is your journey really necessary?' at railway stations.



Colin, 1949

Colin was born in May 1946, and I was cradling him in my arms, thrilled to bits, within an hour or so of his birth. We'd already chosen a name if the baby was a boy, and I whispered it to him. - His impending arrival secured us one of the factory bungalows; Tan-y-bryn was a little colony of thirty or so on the 'bottom road' from Burry Port to Pembrey village, about two miles from the works. Ours was no. 6, nicely placed on the edge of the estate facing south. This was the first real home of our own. It was just wonderful.

Burry Port and Pembrey were both within walking distance for Betty with the pram; moreover there was a reasonable bus service to Llanelly, where there were much better shops and where of course her parents lived. - These factory bungalows were forerunners of the later post-war 'prefabs' which they closely resembled in accommodation and general concept - no refrigerator though, as could only be expected. They survived for many years, but were eventually replaced by a mixture of conventional bungalows and houses.

We were very fortunate in being able to retain our bungalow after I left the ROF. It remained 'home', with that special meaning, for another year, during which I commuted back and fore as often as I possibly could. It was only several months after I'd joined Monsanto at Ruabon that I secured a nice place as our new home near Llangollen, and Tan-y-bryn became a happy memory.

It must be obvious how much I enjoyed my work and life in those wartime years. It was a most important part of my early life; Pembrey was my first job and so exactly the right one for me -- and of course I met my wife there. Also, importantly, I found South Wales and the people, though so different from the East Anglia of my origin, so congenial; I was entirely content and at ease there. I still have vivid mental pictures of the actual Pembrey plants - MNT, TNT, etc - and I could easily sketch the layout of the factory. I can recall the names of over a hundred of the people I knew there, some of the faces, even a few voices. This explains why I have written at such length. - Towards the end of my time there I found a photograph, obviously forgotten about, in a cupboard in my office. It was a splendid shot of all that could be seen of the factory from the main office A.1, the whole Acids section. I pinched that photo without a qualm; later I had it framed, and on the back I've marked up all the buildings. It's one of my most treasured possessions. However politically incorrect it may be to say so, I had a good war!

About half of the ROF's original 2 square miles, the western part, where A/N and Tetryl had once been, has been completely transformed. It is now the very popular Pembrey Country Park, which offers outdoor sporting activities and good camping and caravanning facilities. Unhappily the eastern part - the part in my photograph - has had no such good fortune. For some years a bit of it was a poor attempt at a trading estate, which failed. I visited it in September 2002, and got in past the derelict gate building; no 'dim smocio' notice now, 'no tipping' instead. Every other building, even the fine A1 which could have become a small hotel, has been bulldozed. Some foundations and rubble are all that remain; everywhere is overgrown and utterly neglected. It is a sad forlorn relic of the once vibrant place and community that was ROF Pembrey.