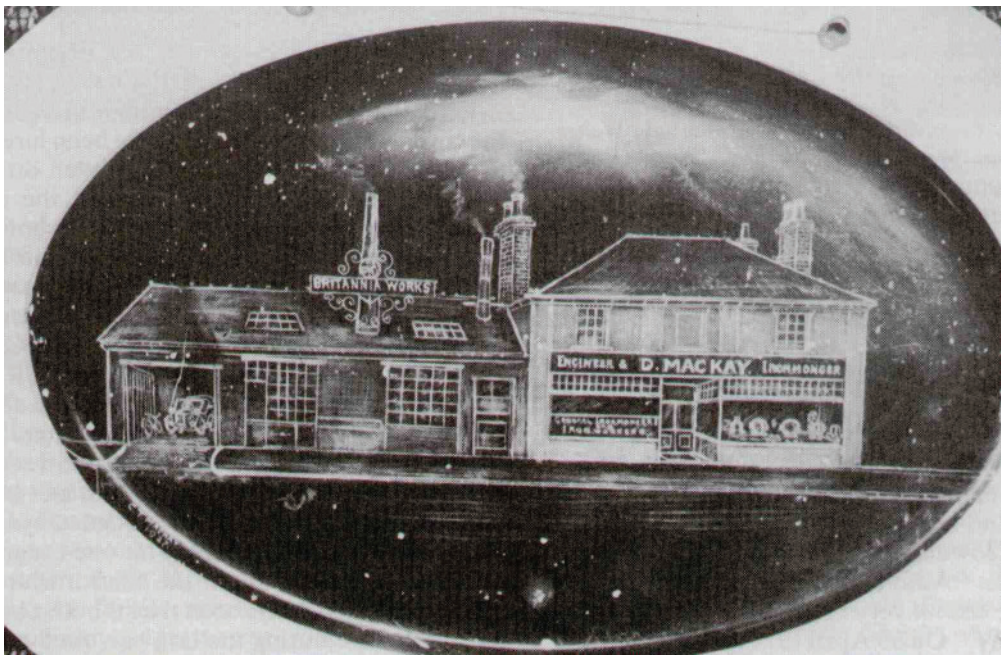
Memories from the Cambridge firm of D. Mackay

In our Centenary Year 2012



Smoked glass drawing of the original workshops and shop in 1927 before they were demolished to make way for the present shop front. This drawing was done by Chris MacKay, sister of the original Donald MacKay

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FRONT COVER: *Donald MacKay in the garden of Roebuck House on May 28, 2012*

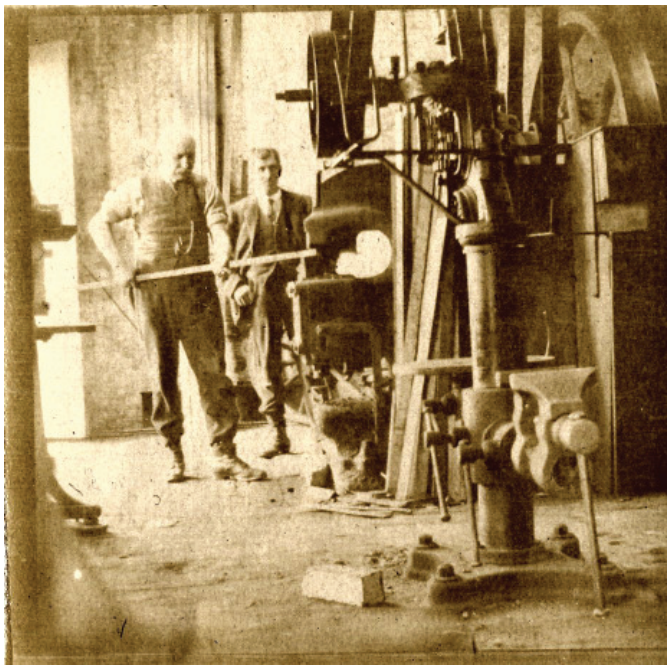
REAR COVER: *Donald MacKay in the 1960s*

The well-known Cambridge engineering and tools retailer D. Mackay celebrates its First Centenary this year. Founder Donald Mackay Senior had established the company as an effective engineering 'trouble shooter' and innovator offering engineering solutions to Cambridge University as well as local construction, engineering and agricultural industries. Looking back at the firm's history, the present owner, also Donald MacKay, relates his experiences and memories since he began work in his grandfather's company back in the late 1930s.

The firm of D. MacKay came into being in June 1912. It was mainly the result of Donald MacKay, a Scottish Highlander, moving down to London and then to Cambridge to find work. The move south started gradually when his father, Duncan MacKay of Elgin, Morayshire, got a job with the North British Railway in Burntisland, Fife, and took his wife and his then only son, Donald, with him to live in the gatekeepers cottage at Burntisland station.

As a boy the young Donald, who had been born in Elgin, spent his early growing up years in Burntisland where his father became

Shop front 1920: this is the original shop front and workshop behind.



Donald Mackay and Duncan Mackay in the original workshop 1920 approx.

stationmaster. The family increased to include four more sons: brothers for Donald. They were Roderick, James, Alex and Johnnie. There were also three sisters, Jean, Bella and Christine. After primary school Donald won a scholarship to the local Academy. He spent much of his spare time out of school: when he wasn't playing on the little rocky peninsula called the Lamerlaus, he watched the Forth railway bridge being built during the 1880s; the bridge was opened in 1890. On leaving school he took a job with Portillo's, a hardware shop in Burntisland's High Street.

On a visit to the shop in 1946 the writer was shown his grandfather's signature against his name in an ancient wages book acknowledging the two shillings he had received as wages. Sadly, like so many other nice little shops, Portillo's is no more. Donald then became ambitious and tried his luck with the great and long established (1759) Carron Ironworks at Stenhousemuir where he achieved the position as a foreman in a department. His son Duncan and daughter Isabella were born in Stenhousemuir. One of the brothers, Roderick, remained in Burntisland for some years after becoming the gas-works manager at a very young age before he went off to America with his brothers, James and Alex.

In the USA Roderick achieved the position as the chief constructional engineer to the Los Angeles Aqueduct, the biggest civil engineering project in the world at that time. Begun in 1908 and completed in 1913 the aqueduct still provides some 75% of Los Angeles' water needs. Roderick was answerable directly to the initiator of the project, William Mullholland, who has the important thoroughfare in Los Angeles named after him: Mullholland Drive. Roderick, who was working way out in the Mojave Desert where there was nowhere to spend money, shrewdly invested his salary in the place where his project would be delivering the water. He died owning some 80 acres of land,

which also included part of the Beverly Hills area.

Roderick's daughter, Christine, popularly known as Blossom, inherited a vast fortune. She remained single and was something of a recluse living on part of the famous Hope Ranch area of Santa Barbara where she grew Sunkist Oranges and Avocado pears on land facing out over the Pacific. Upon her death most of her great fortune went to the Shriners Hospital for Crippled Children. Her father had been a keen member of the Shriners branch of the Masons.

ABOVE RIGHT: Sam Gentle was the Grandfather of Donald Mackay, a county councillor, haulier and carter who ran a business from 85 East road at the turn of the 20th Century. Here he is standing outside his home and Business at 85 East Road. Later he moved down the road to 95 East Road. This house became part of the new Mackay shop in 1930.
BELOW: Old shop photograph in 1965. This is the original appearance constructed in the 1930s. The large blue door was the main entrance to the workshops and yard. Our early Morris Lorry just fitted through the door.

Cambridge: early beginnings

Back in Cambridge Donald and his son Duncan, having escaped from depressed economic conditions in Scotland, obtained employment with one of the early great Cambridge department stores that was then in Fitzroy Street. Laurie and McConnal's, which dealt in practically everything. Donald gained a position as manager of the hardware section, (the building more recently became occupied by Habitat) but when McConnal and another Scottish director, Anderson, retired; Donald evidently had a monumental falling out with Laurie.

There was a wheelwright and fencing firm named Alsop and Sons operating in Cambridge at the time and old Donald is said to have approached the Mr. John Alsop with a proposition: "A very fine business you have here. Do you want to sell it?" Although Alsop had seven sons slaving away at the forges and hammering away on the anvils he just sold the Britannia Ironworks business to Donald MacKay over their heads. A number of his descendants are still around in Cambridge and some still feel sore about that. But Donald was as fair as he could be. The last of the generations of Alsops, Jack, was still working for D. MacKay and doing useful war work and providing a living for his family throughout the nineteen-forties.

Aunty Ki and Arthur Smith to the left and Sid Simonds to the right both of whom worked for the firm under the original Donald and Duncan Mackay. Photo circa 1948

Donald and his only son Duncan started the original firm of D. MacKay as a partnership in 1912. His daughter had attended college in Norwich and had become a schoolteacher in Birmingham. Duncan had unfortunately been stricken with a heart problem and died in 1936 at age 52. Old man Donald who had talked about retiring carried on to help hold the firm together. By now the next generation of the family, the writer and his sister, were getting more deeply involved. There was no question of being able to choose a career. The 'Old Chap', as the original Donald had become known, wrote a letter to the workshop foreman saying: "Teach that boy what you can". He went on to leave everything to his

daughter and put a note on the end of his will: "If that boy is any good give him a job". She went further and took Donald, the writer, and his sister Joan, into partnership. Neither had chosen their careers and we're lucky that the sort of work suited us. Both remained in harness with the firm until the beginning of the new millennium.

Gordon Friend and Mick Denston

With the start of the 1914 war the firm had to rapidly adapt to heating and plumbing work for the military hospitals, one of which had been hastily erected on the site where Cambridge University Library now stands. After that war there was a peaceful period during which time the shape and style of the present MacKay firm was established. For example, a retail shop for engineering tools and equipment was gradually developed over a period before World War II.

As funds became available, money was invested in buying more equipment (mostly second hand). When I started during World War II, the only fairly decent machine was a Dean Smith and Grace centre lathe, which is now in the Museum of Technology. Everything in the workshop was belt driven from an overhead line-shaft. The shaft was driven by a Blackstone oil engine, which had replaced a very ancient gas engine. The gas engine had at the time been retained as a standby and was brought into use occasionally during World War II when diesel oil supplies became difficult. The line-shaft also powered a large rotary fan to supply air blast to the five forges, which were always very busy.

Offering a service of industrial diesel engine power installation, MacKay's became the local agents for industrial diesel engine supplier Blackstone of Stamford, Lincs., and went on to supply many of the engines used in local utilities, agriculture and industry.

One of the local achievements by my father, Duncan MacKay, was the construction in Cambridge of 'Daddy's bridge'. Today's trains on their way to and from Ely cross the River Cam on a substantial truss girder bridge built in 1930 for the London & North Eastern Railway. Mackay Engineering won

the contract for the assembly and installation of the bridge from a 'kit of parts' supplied by the engineering design and fabricator Dorman Long. MacKay's carried out their part of the job very quickly. Trains were able to run again in just 48 hours! 'Daddy's bridge' replaced a plain plate girder bridge built in 1870, which in turn, had replaced the first wooden structure constructed for the Eastern Counties Railway in the very early years of railways in East Anglia.

As an aside, Donald's father, Duncan MacKay, used to live at 143 Cherry Hinton Road before World War II. The house gained the nickname 'The Bagpipe House' on account of his friends who used to gather there to play the bagpipes! I remember those evenings too well!

Locksmith and welding

Leaving school during the war I had been pitch forked in at the bottom end of the firm. The foreman of the machine shop treated me with much suspicion and when I spoilt a job he didn't give me a second chance. Fortunately though one or two of the older tradesmen took an interest in me and pointed me in the right direction to start what was to become a very interesting career.

One aspect of engineering that interested me amongst other things, my father Duncan had made a name for himself as a locksmith. He had set up a little cubbyhole where he kept drawers full of key blanks. Not more than about six foot square the cubby-hole was fitted out with a bench and vice and an early version of a Yale key-cutting machine.

I soon detached myself from the main workshop and concentrated on that. With some guidance from my cousin, who had been trained up in the subject by my father, it was not long before I too gained a reputation as an expert locksmith. The first interesting episode was when Lady Darwin was unable to open her safe. They sent for me and I fiddled around with the safe until I realized that the key did not feel as if it was going home properly. It was a key with a pipe end to go over a pin in the lock: in other words a pipe-key. I discretely probed the pipe hole with a pin and out came a small object that

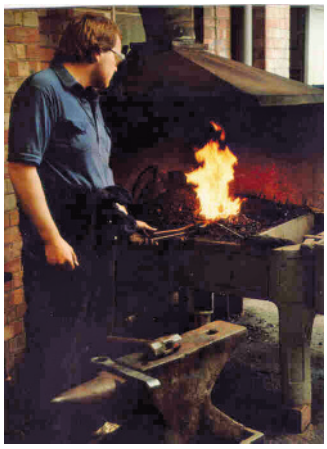


Photo of Blacksmith working on St Johns Screen

looked something like a grain of corn. Hey-presto! To everyone's amazement I unlocked the safe as if, to them, 'by magic'.

Another lock and key episode was when a customer I had seen on many occasions before but could not recall his name, came bouncing into the shop for help because he had broken a key in a lock. I listened to what he said and offered to have a look at it. I walked with the customer to the rooms he occupied in Trinity College. On the way I apologized for not remembering his name. "Wittgenstein" he said, "think of Whitsuntide".

Because of that I have never forgotten him. I sat up and took notice when I heard the name on BBC television recently and he was being described as "the greatest philosopher of the twentieth century". When we arrived at Trinity College he showed me a large seafarers sort of trunk, leather bound and with heavily reinforced corners, and a big brass lock with the end of the broken key just showing. I thought about it and then asked him for two chairs. "What sort of chairs?" he asked. Plain kitchen chairs I said. He looked puzzled but did as I asked and fetched two chairs from the kitchen. I arranged the chairs facing each other with a gap between them. It then took the two of us to lift the heavy trunk up and place it with the lock facing down into the

Shop outing to Great Yarmouth 1948 approx

gap between them. Lying down under the trunk in the gap I was then quite quickly able to fiddle with a piece of wire until the broken key dropped out. It didn't take me long then to pick the lock and open the trunk. The greatest philosopher of the twentieth century said he thought I was clever. It was quite something coming from such a person.

At a much earlier age, when I was a lad and used to play with friends in the cellar of Mrs. Barbrook's shop in East Road it was a Prof. Wittgenstein who used to join us. Apparently he had left Trinity College for a while 'to live with 'real' people. I was one of the 'real' people but had no idea who Prof. Wittgenstein was then!

My father had been taking an interest in welding and had fixed up a section of his workshop especially for the purpose. When he started, bottled acetylene gas, used in welding and cutting metals, had not yet become available. So Duncan had generated his own acetylene supply in a primitive apparatus he had concocted. And he experimented with all sorts of different things to use as welding rods, which were not, at that time, readily available. My cousin explained to me that a collection of old army swords tucked away in the rafters had been bought from a second hand dealer with the intention of trying them out as gas welding filler rods!

War work

Several of the people Duncan MacKay had trained were still active in welding when I started. At the beginning of the World War II, one, Charlie Taylor, had become so skilful that the government poached him from us and sent him to the Bristol Aeroplane Company to be their chief welder. When he returned to us after the war, and I am reminded of this because of the recent announcement that 44 year old sperm had been used to produce a calf, one of the first jobs he did was to build a steel rear end of a cow which they covered with leather for the bull to mount and deliver its sperm! There were a few ribald jokes flying about over that.

Several of the brilliant tradesmen, who had been trained up by Duncan, were taken by the government. As well as taking Charlie Taylor, our diesel engine expert Sid Hamon had been directed to be chief engineer on a merchant ship. We were left with just the older men. In the place of the younger super tradesmen we had lost we were sent all manner of misfits. One, Hugo Perutz, a Jewish refugee, came to work dressed immaculately in a suit and

tie. He had obviously never had to dirty his hands doing manual work. We did manage to get him to work a bolt-threading machine. We learned later that he was the father of the Cambridge Nobel prize-winning scientist, Dr Perutz, famous for his work in molecular biology. Another man drafted to us was a drop out. His name was Windsor and he soon became nicknamed 'The Duke'. The only thing we could get him to do was cleaning, but he wasn't much good at that. He had the inspirational idea of painting all the lavatory seats with creosote!!!

But we overcame most of the difficulties and organized some useful war-work. One job, which landed on our plate, was involved with tank gunnery training. We produced Tank Targets. These were made out of steel, cut to shape and arranged to pop up out of trenches for the tank gunners to practice sharp shooting at. We were just given rough diagrams and had to work out the actual details ourselves. It was on that job the writer first learned to work on a drawing board.

Then the war department sent drawings of little brass bobbin-shaped items with steel needles swaged into them. Young sister Audrey was taught to work a small lathe and she made thousands of them. We found out in the end that they were bomb detonators. When the bomb struck a target the little bobbins hurtled down a tube and the steel needle broke a glass capsule full of some sort of acid, which triggered the explosion. Most of the firm's machinery at that time had been bought second hand and much of it was not just out of date but worn out as well. One machine, an ancient Lee and Hunt lathe , was employed machining cast steel sprocket wheels probably for tanks but we were never told or encouraged to ask what they were actually used for. We just kept churning them out.

One customer who generated a lot of war work for us was a Mr Summerfeld. He had had a brainwave about making a portable runway to allow aircraft to land in the desert. The war office had given him full backing to get it developed. The writer became 'his boy' and had to make anything, or do anything he asked. Summerfeld did not know he was dealing with a part owner of the firm and one day said: "We could do with a young fellow like you at our place in London. We'd pay you a lot more than they do here" (!). This type of runway was used extensively in the desert war and is said to have made the winning of that war possible. On a recent holiday in Africa we found the material that

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MULLARD RADIO
ASTRONOMY OBSERVATORY

Dear Donald,

The Cambridge Radio Astronomers

wish you all every success for the next 75 years!

Tony Hewish
John Baldwin
Donald Wills
Michael Scott
John Shakeshaft
Dennis Sky
Guy Pooley.
Bruce Elsmore.

LEFT: Radio astronomers from Cambridge University signed a mounted photograph of the 2000m telescope on the occasion of the firm's 75th anniversary. The astronomers' signatures were from many of whom formed part of Martin Ryles Team. Martin Ryle and Tony Hewish got the Nobel Prize for their work.
BELOW LEFT: The 2000m Interferometer made by Mackays for Martin Ryle, with which he made his first radio survey of the universe.

came out of a Summerfeld runway used in the war had been used to make fences around family living area compounds. None of our staff had been called up for active service during the war. A reserved occupation order had been slapped on the firm. We had worked day and night for months producing components for the runways and equipment used in laying it.

In addition to doing the war work we were involved in fire-watching, positioned on the roofs of our factories and shop. One bomb fell near to us and wiped out a whole family and their house nearby.

University work

Soon after the end of the war a scientist named Martin Ryle of the Cavendish Labs became a regular customer. He ordered hundreds of cut and drilled angle iron stakes. It was puzzling to us as to what they could be using them for. We were eventually told they were to be spaced out and driven into the ground to have wires stretched between them to form radio aerials for listening to radio waves coming from space. It sounded a bit like science fiction to us but it developed into the new science of radio astronomy.

Our firm went on to design and build huge arrays of aerials in parabolic form, which applied a new method invented by Martin known as 'Aperture Synthesis' by which means the aerials became many times more powerful. Indeed the original aerial at Lords Bridge, still sometimes used 50 years later, was immensely powerful and it was years before any other radio astronomers caught up with the lead Martin had established. The results obtained from his telescope gave astronomy the C3 catalogue of radio stars, which is still relied upon today by astronomers worldwide.

The method and type of aerial structure was copied in Australia and several other places. Martin was knighted and took a Nobel Prize for his work. He was also appointed as Astronomer Royal by Her Majesty The Queen. Sadly Martin was stricken by illness and died

ABOVE: Ballvalve Belles. A bit of drag fun here in the 1950s with male employees competing for the best 'Ballvalve Belle'!

RIGHT: Works outing to a farm in 1950s: being pulled by a very modern tractor.

much too young. It was probably because he had been awarded the privilege of occupying the desk at the Cavendish of the earlier great scientist, Rutherford. The desk was later discovered to be quite seriously radioactive.

Rutherford's senior lab assistant, George Crow, was well known in Cambridge. He had several fingers missing from handling radioactive material before it was properly understood and he too died early.

Many good Cambridge firms had their origins in the MacKay workshops. A young university science graduate named Malcolm Boston called in to get something he had made

welded up by our chief welder who went on to make and weld up all sorts of other things for him. From these small beginnings came highly sophisticated vacuum pumps. Boston eventually launched out on his own. We designed and fabricated a steel framed building for him in Histon near Cambridge. The new firm was called Vacuum Research Ltd and was eventually taken over by Shell. All sorts of other firms grew out of it.

Serving engineering development

Then one day in walked Roy Paske. On his discharge from his officer position in the wartime army he was trying to pick up the pieces of a disrupted life. He advertised in the newspaper for someone to help finance a project he had in mind. One of our big customers, Les Wheeler, answered the advert but was not impressed by the proposition. Roy wanted money to buy a lorry to go around collecting empty cartons from shops so he could recondition them and sell them back to the original users. Les, who had been the originator of golf caddy cars, which we made for him in massive quantities until he started his own firm making them, didn't think much of the Paske proposition, but someone else did. That person loaned the money with

Annie Brawn and on her right, Herbert Allgood during a works outing in the 1950s

which he bought a lorry and rented an old chapel in Burwell and started business. Soon he had twenty women working for him in the chapel.

Next he came back to see me because someone had told him that I would be the right person to sort out and get back into working order an ancient corrugated cardboard making machine he had bought from a scrap yard. I said it was not only out of date but worn out as well. He said he had seen it working so it must be able to work again. He convinced me and I put one of our key men on the job.

Soon the machine was all put back together again and I asked Roy what he was going to do for steam. He hadn't thought of that. Well, I said, you are going to need a boiler. He went off and bought a small dairy boiler. I told him it wasn't half big enough so he went off and came back with another one. He told me: "You said it wasn't half big enough so two must be big enough." What could I say? We soon had the machine running making corrugated cardboard.

My father had established a reputation for good workmanship with several university departments. Several jobs come to mind. I will pick out a few of them to include. The Cavendish labs gave us the job to build a brass room about 15ft long by 8ft wide and 8ft high. There was to be no ferrous material used in it anywhere. Even the hinge pins were of brass and we had to fit it out with lots of brass shelves. Next time we saw it the shelves were loaded with chassis each carrying dozens of radio type valves. This was before the days of microchips. The room had been built to screen the electronics for a very early computer.

During the electricity strike of 1972 I turned my attention to making a wind powered electricity generator. Martin noticed me working on it and said he was very interested. To cut a long story short Martin turned my lash-up job into a highly technical scientific project. But it began to cost more than I could sensibly afford. I told him I couldn't go on and he bought everything we had done together and started the Wind Energy Department at The Cavendish Laboratories with it. Unfortunately, still in his sixties, Martin became quite ill. He died while he was still working feverishly trying to convince the world of the dangers of fast breeder reactors.

The wind Energy project carried on for a few years with evidently several young men gaining their PhD's from it but the department now seems to be lying dormant. It does though seem very likely that it was this project that had started in the MacKay workshops has had some useful influence on wind energy equipment that has since developed on a large scale. In Norfolk I have noticed wind generators that appear to have been modelled on the original Ryle/MacKay prototype.

Adding on a retail business

So far I have described my own experiences in the engineering department of the firm, but the engineering activity had generated a very useful stores where other local firms would

call and try to obtain supplies. Grandfather and father recognized the possibilities in this and opened the stores up as a shop selling anything to do with engineering. It grew and grew. Alas though, the death of my father, Duncan, nearly brought it to an end. That is where his daughter, Isabella (Aunty Ki) and my sister Joan, came in.

Isabella had attended a fine arts school. Joan had won a scholarship to study music but gave up the idea on the death of our father to become secretary to our grandfather at the shop. Grandfather had come back out of retirement to try and hold the firm together. Joan developed into a star businesswoman and she was probably the main reason why the firm survived a terribly difficult period.

When grandfather became too old to carry on working he had sent a message to his daughter who was a schoolteacher in Birmingham saying he needed her. She gave up her teaching position and returned to Cambridge where she tried to make herself as useful as possible in the firm. But without any of the right sort of training she committed one or two monumental blunders before finding her right niche, which was in the accountancy department of the workshops where she developed a brilliant system for

'Miss Joan' arranging spanners in the tools department during the 1960s

pricing the jobs. Joan and I always referred to her as 'Aunty' and soon all the staff and many of the customers did the same. They too called her 'Aunty'. She ended up as becoming so well known and popular as 'Aunty' to everyone that the BBC put the funeral of Aunty out on television.

Small and medium sized shops have the advantage that the staff get to know the regular customers, and sometimes there is an amazing spin-off. One example, an Indian man called Tony Dosangh, walked into the

Photo taken circa 1989 'Miss Joan' married Jim Moore MD of Pecks of Ely

shop soon after the war and I served him personally. It turned out he had been on a cycling holiday when the war started and he could not return home.

Typically of his race, he wasn't going to stick around doing nothing. He had a fair amount of money and he rented a shop in Magdalene Street and started trading in clothing. He took on a young lady to help him and they soon became very friendly and married.

Trade started to pick up after the war and land was being auctioned in Mill Road. Bored of spending too much time in his shop Tony attended one of the auctions and as no-one was bidding he put his hand up and acquired about an acre of land knocked down to him at the back of the Mill Road Broadway shops; it was at an enviable figure. Having become the owner of the land he didn't have any idea of what to do with it. He told me about his problem and I offered the suggestion that since they are just starting to manufacture cars again people are going to need somewhere to put them, What about lock up garages? He thought it was a brilliant idea and started to try building them himself. Realising his problem I designed a frame with hinges to form the front of the garages so all he then needed to do was to build in the walls out of concrete blocks. After that there was no stopping him. He soon had his friends in Ilford and Nottingham doing the same thing.

I still hadn't realised just how grateful Tony was. I met him in the street one day and told him I was going on holiday to India. "Then you must meet my nephew," he said. To cut a long story short we booked ourselves a flight

Paul Weston attends to customers in the Fasteners and Fixings department in the 1990s

and a hotel in Bombay and hadn't been in the hotel long before someone was paging us in the dining room: "Mr MacKay, Mr MacKay," I went over and said my name is MacKay. The reply came back Mr Sohan Singh has asked me to find out if there is anything you need. "We've only just got here, we don't know what we may need". "You'll need a car won't you?" " I suppose so," I said. "There is a car for you all the time you are in Bombay with the complements of India Potash".

The car driver slept outside our window to be sure he was available any time we needed him day or night. He took us to see all the important places in Bombay and at the end of the week took us to the airport pushing us through the crowded queues as if we were VIP's. It all happened again when we arrived in Delhi. There was someone sent by Sohan to look after us. Sohan entertained us for several days in his palace-like home and then sent us by car around the Golden Triangle including Jaipur and Agra. The Taj Mahal alone would make the trip worthwhile. The same driver then took us off to see the millions dipping

Company ever

TOP: *Aunty Ki's 70th Birthday party Garden House Cambridge. Circa 1954*

RIGHT: *Ironmongers dinner held in the early 1960s*

BELOW: *Works outing 1951 Yarmouth*

nts and outings

themselves in the holy water of the river Ganges. That was not the end. We got on so well with Sohan that he invited us to attend the wedding of his granddaughter in Delhi in 2007. Celebrations went on for four days and then everyone went to the airport to be flown to Goa where there was a second wedding ceremony put on by the family of the young man. We tried to pay our hotel bill only to be told it was being paid for us. The hospitality we received in India was fantastic.

I should have mentioned earlier Professor Sir Bryan Matthews who came breezing into my office one day and told me how much he had appreciated the work my father had done to get his Bentley ready for a great adventure. Sir Bryan had been the first person to coax a motor vehicle over the Andes. We became good friends after that first meeting and he gave me many interesting jobs to do. One was rigging up bicycles with back wheels made of 1in. thick solid steel plate for experiments he was doing in his physiology department. Young medical students had to pedal the bikes, which were mounted stationary, whilst having their breathing, heartbeats and blood pressure monitored. It was great fun putting into practice apparatus dreamed up by Sir Bryan.

Another famous figure of the time I got involved with was the adventure writer George Spenceley who was a member of the same climbing and rambling club as I. He came to me to ask if I could design and manufacture a lightweight waterproof container. Spenceley was planning to canoe along the Mississippi River in the USA and needed the container to protect items like watches and spare clothing, etc. I designed and made an aluminium locker, which could be bolted to the canoe. It worked very well apparently.

Spiral stairs

Now I should mention the adventure we had into the spiral staircase market. It was the Cavendish Laboratory, which was again responsible. They had realized that part of their Old Schools building would be a death trap in the event of fire. They needed a fire escape but there was not a lot of room for it. My suggestion of a spiral stair was accepted with enthusiasm so I drew it all out and ordered cast iron spiral staircase treads from a firm of iron-founders. These treads fitted on

One of the first major spiral staircases delivered by D. Mackay was to the New Addenbrookes Hospital in the late 1960s

a pipe about the size of scaffold tube. Each tread though had to be taken up to the highest level and threaded down the central tube. It was a lengthy process, but worse, when the top was reached there was a high probability that the last step would not line up with the landing. That was what happened with the Cavendish staircase and try as we could, we could not lever it round into the right position. It all had to be taken down again and re-erected.

When we got it right it was an excellent result and everyone was very pleased with it, but I felt there must be a better way. Having 'slept on it' I set about devising a type of step where each one bolted to the next without a central pole. At the top, if the stair didn't line up, it was a simple matter to slacken the first fixing, revolve the whole staircase into the right position and tighten it up again. That was in about 1967 when we were heavily involved in doing the metalwork for Sir Hugh Cason's building developments for the university in Sedgwick Avenue.

Sir Hugh Cason's consulting engineer, Mr Ian Potter, came to see us about another job. We showed him the staircase design and he said he thought it was so good we should patent it. He went further and put us in touch with a patent agent who was just as enthusiastic about the idea so we asked him to go ahead. This safeguarded the idea for a year but the agent then wanted to know if we wanted world cover. For this he quoted what to us was an astronomical figure. We said no and he said if you can't afford it we could try and find you someone who will.

They found Arthur Guinness Son and Company who had saturated the market from their aluminium beer keg making company and wanted something else to do with the equipment. Just about that time there was a horrible fire in a hotel in Saffron Walden with the loss on Boxing Day of 9 lives. I wrote to the MP for Saffron Walden and said I had been having difficulty getting planning permission for my fire escapes in his area. He came to see me straight away and, after running up and down one of our spirals he said: "Fantastic, just what is needed." He pressed ahead with drawing up a Fire Safety Act, which included a drawing of the sort of fire escape we were producing. In other words, an Act of Parliament inviting people to use the things we were making. Well, after that we were swamped with orders and couldn't keep up with the business.

Arthur Guinness Son and Company had

been paying us royalties. We rehashed the arrangement we had with Guinness and their staircase company grew and grew and, as with most of the other Guinness diversifications, was eventually sold on. The original management team bought the firm out and it has been manufacturing the staircases in huge volumes in a factory in St Ives near Cambridge. The patent has long expired, but we continued to benefit by making difficult bits and pieces for them. They have been very good customers.

Perhaps it would have been better if I had concentrated on the spiral stairs, but I always so enjoyed the variety of interesting projects that I never did get time to specialize in any one thing. I have two people to thank for much of my knowledge of engineering. Firstly, there is my sister Joan for cajoling me into attending night school at the Cambridge Technical College. Secondly, a person I have never met: a Mr Percy J Waldram who wrote a book entitled 'The Principles of Structural Mechanics'. That book became my 'bible'. I could usually find anything I needed to know about structures in the book.

Over the years we constructed and installed many spiral staircases too numerous to mention here. But I will talk about two of them. One of the first major spiral stairs projects involved the new Addenbrookes Hospital, Cambridge, in the late 1960s when we constructed a stairs to serve three floors as a fire escape. A notable one for us was the design and construction of an unusual wide tread spiral staircase built for the new London Hilton Hotel near Hyde Park Corner in the late 1970s. The metal spiral staircase was the 'skeleton' for a finished marble-clad stairs, a very impressive job I have to say. His Highness Prince Philip Duke of Edinburgh walked in one day as we were working and asked us all kinds of questions about the project.

Turning ideas into reality

The firm of MacKay's had established a reputation for turning other peoples ideas into reality. There was no let up. There was never ever an opportunity to get bored. For instance, in getting mixed up with all the 'higher tech' stuff an enquiry arrives from a firm of property agents in Oxford. Would we quote for removing and rebuilding afresh an ancient metal-framed conservatory in Gloucestershire. We telephoned and asked "why us? There must be people nearer to you in Gloucestershire who could do it."

An RAF helicopter delivering the Wurtzburg radio Dish to Lords Bridge, where it was used for many years, before being retired to the Duxford war museum

The answer came back: "We were recommended to you by Dorman Long". Dorman Long were the designers and builders of the Sydney Harbour Bridge and until steel nationalisation were the biggest firm of structural engineers in the world. In that case we said, we had better come and have a look.

Well, the conservatory was at a lovely old house called Gatcombe House. We had a careful look at the structure and wrote a letter saying that by far from being demolished and replaced it was worthy of restoration. Back in Cambridge the telephone rang and it was Lord Butler wanting to speak to me. "I have seen the letter you sent to my agents," he said, "and I am very interested. Will you come and talk to me about it".

Lord Butler had been installed as the master of Trinity College to run the place while Prince Charles was there. I trotted down to the Masters lodge and Lord Butler greeted me and

went on to interrogate me about my opinion that the conservatory could be restored. Even big firms, he said, had claimed it was beyond saving. If you did what you are suggesting, how long would it last? Well, I said, it has been there for a hundred and fifty years and if my firm restored it, it could be there for another hundred and fifty years. He asked: "And how much would it cost." That is a big question I said, but I could do a lot for £20,000 - a huge sum of money at that time. Without further ado he said, "I would like you to do it".

That left me with a problem. I called for volunteers. One foreman said that he wouldn't mind taking part. I ended up renting two mobile homes. One was for the foreman, and his wife and small son, and the other to house apprentices and other workers needed on site. What we didn't know and were never told, was that the property, Gatcombe House, was to become the property of the Queen for use by Princess Anne who still lives there. The house, and the conservatory, is still in the perfect condition we left it in, and it occasionally appears in newspaper photographs.

Sugar beet seeds planter

Probably my very first job was for a Dr Leakey, a member of the university and something of an inventor. Sugar beet had become an important crop and huge processing plants were being built all around

This photo was taken in 1989 and shows the shop much as it is today, with the engineering workshops behind

ABOVE: *Neil MacKay in June 2012*

the country. One big snag with the growing of sugar beet was the placing of the seeds. Some of the big agricultural machinery companies had come up with machines but they didn't work very well. Dr Leakey invented a mechanism that was miles ahead of its time and it was built in the MacKay workshops.

There was one big problem. In spite of the fact the Farmers Weekly put out a headline "This is the Machine we have been waiting for", none of the established agricultural machinery people were prepared to adopt it as they were making good profits turning out their inefficient models. Not to be deterred, Dr Leakey gave MacKay's an order to produce

Duncan MacKay in the garden at Roebuck House May 28, 2012

ABOVE LEFT: Foreman Barry Smith (left) discusses a job with one of the machinists at MacKay Engineering
ABOVE RIGHT: MacKay Engineering's Works Manager Alec Swain in the 1980s

twenty machines and set up his own company to rent the machines out to farmers. His business was growing and thriving. Sadly, after the death of Dr Leakey other firms just copied his invention, which has been generally used ever since. The actual work of building the machines had been done by a MacKay trained man, who subsequently played an important part in many of our interesting projects.

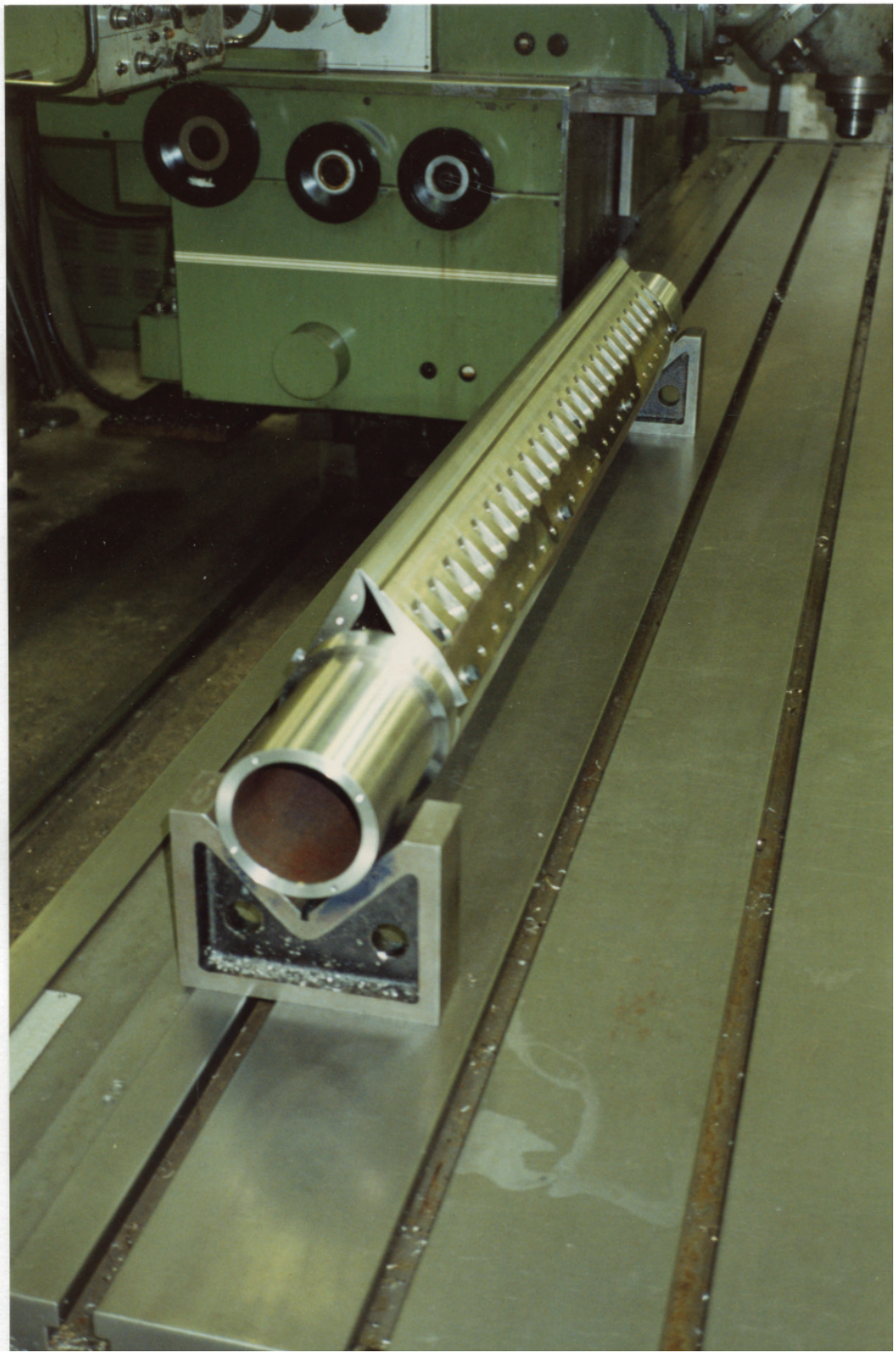
Then there was the great tradesman, Syd Symonds, a wheelwright who could make anything in wood. One job I particularly recall was to increase the size of a little cupboard used to hold the chalices etc at the Roman Catholic Church. I went with Syd to collect it and asked: "What goes in it?" The immediate reply I received was simply one word: "God". When we were outside in the car I asked Syd what he thought the priest had said when I asked what went in the cupboard. He didn't know so I said I thought he said 'God'. He was quite right if he said that, Syd said, because God is everywhere.

In those days we sold bathroom equipment in the shop. One day a giant of a man came in to buy a lavatory seat. He was disappointed because we didn't have a big enough one. In the end he chose the biggest wooden one we had and Syd took it to his workshop and cut the hole out bigger and smoothed it all nicely and the customer was very happy with the result.

Another great character was Arthur Smith of Cottenham. He had the nickname 'Tipper' because he would spend all his spare time in his local pub and buy half a pint of beer

PARABOLIC PROFILE IN STAINLESS STEEL
TEST PIECE OCT 1991

COMPLETED
ASSEMBLY
OCT 1991



MacKay Engineering in Church End, Cherry Hinton once operated two of the largest horizontal travelling column milling and boring machines in East Anglia. The job on the table of a Butler Elgamill is a special stainless steel job with a parabolic profile for the process industry.

and make it last all evening. He was very tight where money was concerned and was saving on heating bills at home by claiming the cosiest seat in the pub and stopping there all evening. When the government first brought in PAYE Arthur was awarded a very unfavourable code number. He thought it was us who were keeping his money. What had happened was, the tax people had found out he had a field in which he grew strawberries and he had not been in the habit of declaring the considerable income they produced for him. They just bumped up his PAYE coding. We had a job to convince Arthur it was not us taking his money!

As I write other memories come back to me. We had been doing a lot of work under the instructions of an architect named, Oliver Churchill, a member of the Hughes & Bicknell practice. His young son, Toby Churchill, who had been studying electronics, went off on an exploration holiday to European countries. Alas, when he returned home he was showing signs of serious illness. It turned out to be the awful, disabling, motor neuron disease. He ended up unable to speak and with the loss of movement in his limbs. Just one limb, his right arm and hand was left with a useful amount of movement. But the illness had not affected his ability to think.

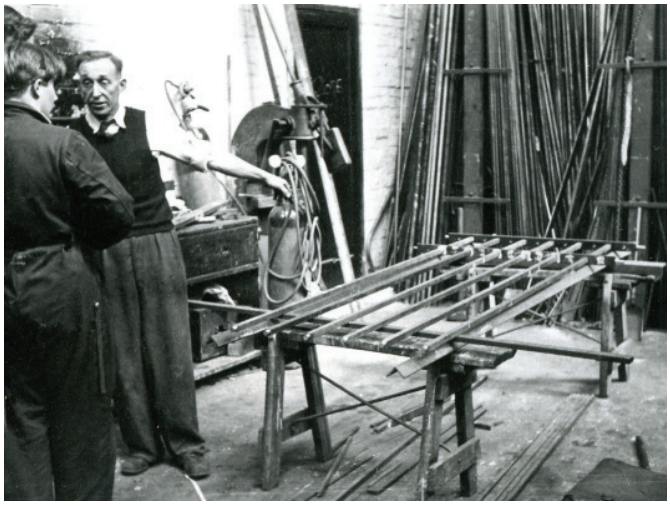
Toby Churchill went on to design and develop an instrument he could use to convey his thoughts to other people. It was like a typewriter that spoke. Next he thought it would be possible for him to drive. His father asked me if I would be prepared to help adapting a car and the prospect seemed so interesting that I bought a suitable second hand car and introduced our most promising fourth year apprentice to Toby and the project. Toby considered that if, instead of a steering wheel, he could have a lever with a top like the top of a walking stick that he could turn with his one hand, it could be arranged in such a way that if he pulled the lever towards him it could be made to apply the brakes. So out came the steering wheel and column and in went a new column painstakingly designed by Toby, mainly using sign language. When it was all completed Toby demonstrated he could drive it around out car park.

The next step was to try and get him permission to drive the car on the highway. He made an appointment with the chief driving licensing officer to meet at Duxford aerodrome where Toby drove him around quite speedily and in a very impressive manner. As a result he was issued with a driving licence. Oliver Churchill was so pleased he invested a lot of money in buying

Working at MacKay's

Two stalwarts seen in the engineering department are Machine Shop Foreman John Cheesley and Reg Moore

Mick Willis managed the metals stockholding department



ABOVE: *Ted Ison has a few words with a welder during the fabrication of gates*

TOP RIGHT: *Essential to the supply and service of tooling and equipment is the maintenance of a good Storage Department seen here*

RIGHT: *Donald MacKay (right) watches Ian Larque and another apprentice being instructed in the machining of a job on a Huron universal milling machine at MacKay Engineering in the 1980s*

Toby quite an expensive brand new Austin car and by then the Cambridge University Engineering Laboratory became interested and worked with Toby on adapting it in a similar way.

His project came to the attention of the Duke of Edinburgh's Award scheme and he drove the newly adapted car all the way to Aberdeen to receive an award presented personally to him by Prince Phillip. I once asked him what he would have done if the police had stopped him. His simple and immediate answer was: "Act Dumb". The electronics firm he had developed went on to achieve an admirable reputation. Toby has now sold his firm and is living in retirement. He had eventually though to give up driving.

Small Works Division

Our Small Works Division within MacKay Engineering at Church End, Cherry Hinton, grew from a former blacksmith's shop (we still called it that) and one of the early jobs was that of welding up a metal tree 'skeleton' for Madame Toussauds in London. The museum then added the bark, leaves and so on. The shop also constructed a welded stainless steel spire for the church in Swaffham Bulbeck. The spire consisted of a fabricated stainless steel frame with a lightweight cladding in 18SWG stainless steel.

Decorative wrought iron or fabricated steel gates was one of the Small Works' specialities. We assembled a set of 'real' wrought iron gates for Homerton College. The wrought iron was produced by a Midlands firm long since out of business. Before the Church End factory closed, the very last 'gates' job was constructing a set of wrought iron gates for the Cambridge University Botanical Gardens in 2010.

Politics

It would have been about 1960 that I was descended on by pressure group intent upon encouraging me to stand for a seat on the City Council. I had moved from my previous home in Girton to a house that had been built for the daughter of the famous preacher, Gypsy Smith, The house, named Pinetrees, was in Glebe Road just off Hills Road. The spirit of Gypsy Smith still lingers in the property. I resisted the pressure to stand for election for a couple of years but then decided I probably owed it to Cambridge to devote at least some of my time to public service.

Cambridge has seen a lot of changes since

those early days of our firm. The City, or 'Town' as it was then, was largely built out of bricks made in Newmarket Road where Coral Park now stands. My mother used to take me there in a pushchair to watch little trucks full of clay being hauled up a sloping track from a huge pit from where the clay had been dug. When brick making discontinued a man named Dicky Duce bought the pit and the abandoned brickworks and opened it up as a rubbish dump. He earned a useful living by charging people to deposit their waste in the pit until it was full and then he opened it up as a scrap yard. Sometimes he obtained some useable items. For instance, during the war rubber was in short supply and so wheelbarrow wheels were pressed out of steel.

From time to time Dicky arranged auction sales and at one of them I put my hand up and had about fifty of these wheels knocked down to me at a next to nothing price. He went on to offer the next batch and there were no offers and so I said I would take all he had at the same price as I had paid for the first batch. There were hundreds, far more than I had realised, but I decided to make room for them but was only able to sell a few when the space was needed for other purposes. As luck would have it, with the increase in traffic, parking control had become necessary and I made a no parking sign out of one of the wheels by welding about eighteen inches of gas pipe into the axle hole and about 10 x 8 in. 16 gauge sheet metal to the top. Swainlands, a sign-writing firm in East Road sprayed them and painted NO PARKING on the plate and they were lapped up by local authorities in and around Cambridge. They were very popular up until plastic parking cones were invented.

I remained on the City Council for thirteen years. In some ways these were very good years because I learned so much about the way the democratic system works, and also the way it doesn't. As Winston Churchill is reported as saying "It is said that democracy is the worst form of government except all those other forms that have been tried from time to time"

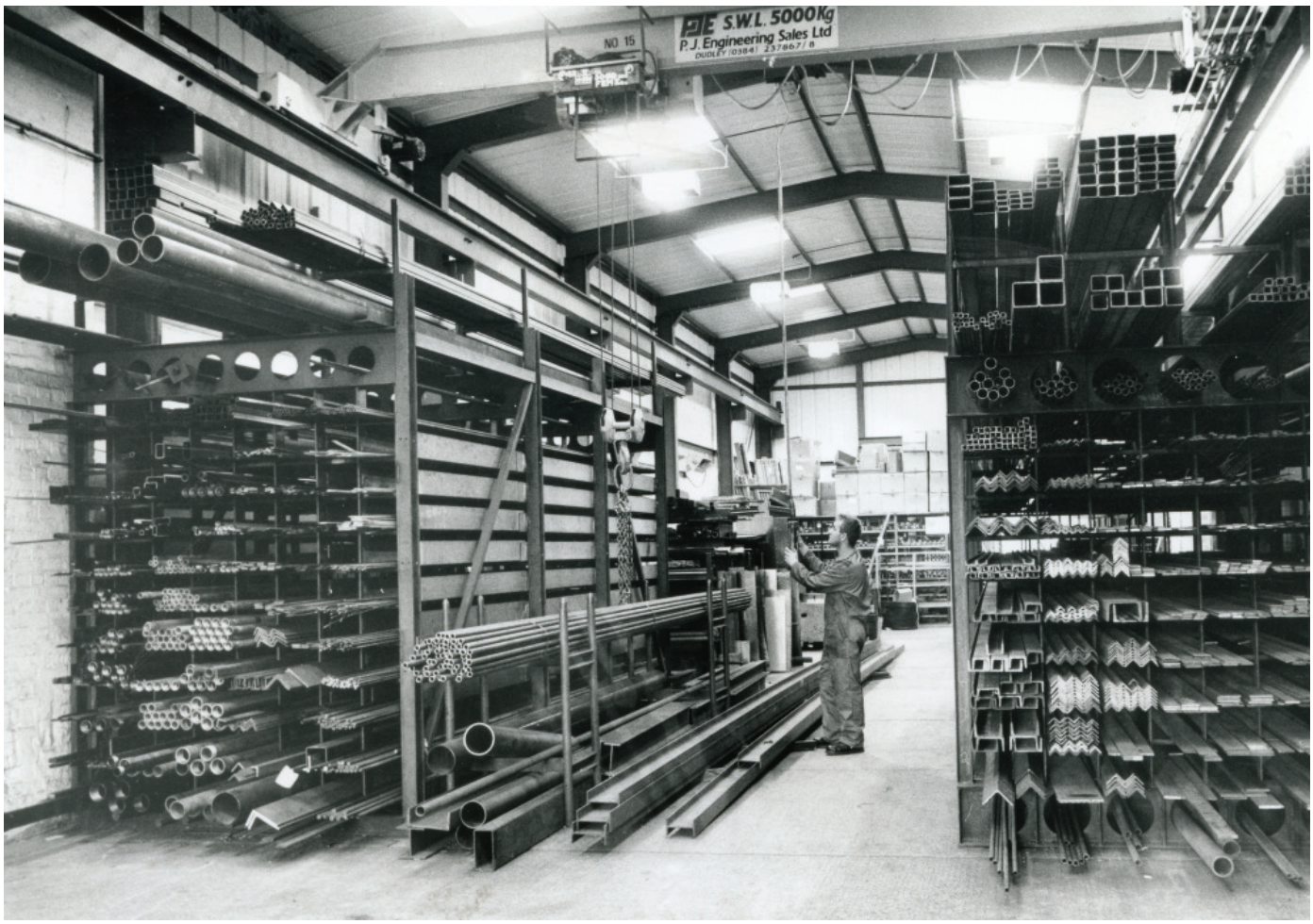
As a firm we have been through it all before, several times. More important, as a country we have been set upon by strong competition from abroad. When I was a lad, anything made in Japan was rubbish. Back in the nineteen thirties it was noticeable that Cambridge University was swamped with foreign students, mainly Japanese. I think the Japanese systematically sent young people abroad to learn ways and means and

RIGHT: *Aunty Ki planting a tree in the old car park, now site of the Crown Court. This was taken in about 1972 on the 60th Anniversary of the firm.*

then, when they returned home, they made an even better job of it than the Europeans. Take cameras for one example. Then again, motorcycles. Our roads became swamped with Japanese motorcycles. It came to a no choice situation. If you wanted a good motorbike it had to be Japanese and that was at the time the Japanese hadn't even started on cars. Harold Wilson was quoted as saying, "We'll soon fix them, we will introduce them to tea breaks". That is more or less what happened and now China is taking over.

Things are changing, and we must all think about pulling our socks up and changing. There is a limit to the amount of time our country can survive by pushing paper around in London.

BELOW: *Tony Durham, editor of 'Cambridge News' opening the new Metals Warehouse in 1984.*



Metal warehouse fully operational in 1984

And so to today

In this year of 2012 our firm will be celebrating its first century. But if we are to survive any longer we will need to find additional kinds of things to distribute and different kinds of engineering jobs to carry out. Generally that means looking for things the supermarkets find too difficult or inconvenient to handle. Tesco, for instance, have started selling electric tools and they have invaded many of the things and areas our firm specialised in. But the supermarkets tend mainly only to stock all the straightforward things.

When other large distributors arrived in Cambridge we noticed the draught for a while, but it was not long before our loyal customers returned to enjoy the sort of service we pride ourselves in offering. But now, even our good friends Ridgeon's, who normally dealt only in building materials, have opened up a section to handle ironmongery and tools.

Small shops are rapidly vanishing, being unable to compete with the big boys. We hope to prove that there is still room for medium

Homerton College gates, made by MacKays

sized specialists. Near my home we have a supermarket, which seems to be going out of its way to put the popular little paper shop next door out of business. It is difficult to understand the motivation for this greediness.

As a company I like to think that we as a family were always very appreciative of our workforce. Our family of employees have included grandfathers, fathers and sons. Many had often started with us as apprentices and have worked with us for 40-50 years. Indeed the Church End factory in Cherry Hinton grew to offer some of the largest machining capacity in the region. We certainly operated the two largest travelling column milling & boring machines to be found in East Anglia.

As regards the immediate future for D. MacKay, a growing proportion of our tools and equipment sales business is coming via the Internet. However, we try to retain a traditional feel to our services and range of goods. A lot of customers don't like having to

As the shop front was in 1995 approx.

buy prepacked goods from large companies. They prefer the human approach and personal service, which we provide while recognising many of the sales are through the Internet.

We have made great strides in carving out a little niche for ourselves in the World Wide Web. We also still maintain an element of engineering in the small works department and people still come to us for metals (some of which are not easy to obtain) cut-to-size and shape and backed by a comprehensive welding service. Computers play an increasingly important role in the life of our business. Our ability to generate programs and software has allowed us to sell goods in a way that others cannot.

Meanwhile, we are celebrating our centenary on June 16th 2012. And I hope good old MacKay's of Cambridge will still be here for another 100 years long after I have gone off to join my father and grandfather in the next world. As for the future, even David Cameron, our Prime Minister, is unable to predict what we may expect. It evidently depends very much upon what happens in the Euro-zone. If there is to be a break up in that area then anything could happen. Smaller firms in this country are already finding difficulty in surviving. Hopefully our firm is big enough to survive the ordeal that still may be laying ahead for smaller businesses. Our successors will be facing all manner of different kinds of difficulties and it is hoped that they will have the stamina to face up to whatever is in store.

Donald MacKay III.

Staff of Goods In and Internet Despatch Department

Office and computer team

Metals stores staff unloading lorry

Sales, Prices and Buyer team

Handtools and Fixtures counter

The Garden and Plumbing department

Echo Fabrication in Fulbourne restored this copper and glass street lamp as a Centenary gift for Donald MacKay. Echo Fabrication was born out of staff and engineers who had all served their time as apprentices and had qualified as engineers while working for MacKays