

LEO COMPUTERS SOCIETY

Registered Charity No. 1182253



LEO MATTERS

73 Years

Editor: Hilary Caminer

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1951—LEO I Operational



Cadby Hall, Hammersmith, circa 1982

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Message from our Chairman - Peter Byford

Welcome to the November 2024 edition of LEO Matters. It has been prepared as usual by our excellent editor, Hilary Caminer then designed and published by Bernard Behr. Hilary has not only edited the newsletter but has also contributed to many of the articles in this edition. Thank you to the contributors for your articles - without you we would not have a newsletter.

I was glad to be able to welcome a number of new members in the last few months several with no LEO "credentials" but with interest in the LEO story. New members come from far and wide with the latest coming from Sri Lanka and China, although they are working in Australia and London respectively. This brings the countries that our members come from to 30.

We held our AGM online in June and we were pleased that many members either attended or sent in their proxy votes.

A motion was passed at the AGM to introduce a modest annual subscription to the Society. This would be used to cover the running costs of the Society and small scale initiatives – we would still need to apply to outside sources to fund major projects. Members who do not wish to make such a payment would remain on our lists and receive all our messages, but would not have a vote on decisions at the AGM or similar meetings. We will be contacting members shortly to explain the practicalities of this subscription. We also talked about the importance of 'future-proofing' the Society and attracting younger members.

As I have said before we have plans to promote the LEO story

particularly through education and researching and encouraging museums to display LEO both in the UK and abroad. This leads to the first article which is an appeal for volunteers. Even if you can only spare a limited amount of time this would still help us.

The next article is about collecting LEO treasures and particularly the Pinkerton collection. This latest donation includes the original schematic diagram of LEO I drawn in 1950. This will be professionally conserved at CCH. We are still getting donations for the LEO archive. I would encourage you to let us have any LEO items so that they can be recorded and made available at CCH.

The next two articles are about two of the women who worked on LEO in its very early days.

Storm Mavis – it is great that a pioneer, Mavis Hinds who used LEO I for weather forecasting has been recognised for her work – in a very unusual way.

The next article is about Jean Cox (later Elliott) who sadly died in March this year and we are pleased that her daughter Kerry has helped us compile this tribute. Jean worked on the initial build team with John Pinkerton and indeed made the fair copy of the schematic plan of LEO I referred to earlier.



Peter speaking at the Celebration event at CCH May 2023

We then have a tribute to Ken Abbott, another of our members who died in April. Ken was a much valued instructor at Minerva Road in the 1960s. Ken's wife and daughters helped us with this article and daughter Lorena has also joined the Society.

The next two articles are reminiscences which have been sent in by members. Firstly Mike Canton who writes about the good start that working as an operator on LEO I gave to his career and then a brief memoir from Don Mitchell, an engineer on LEO III, who spent some time at CAV in Acton.

We finish with an Information section

I hope to see many of you at our get-together at TNMoC on

the 31st October. We also planning a London event in Spring 2025 at the Queen's Head (the LEO/Lyons pub) in Brook Green , Hammersmith.

STOP PRESS: Recently we heard that planning permission has been passed for the redevelopment of 66 Hammersmith Road (on the site Lyons HQ – Cadby Hall). The hoarding for the development has yet to receive council approval, although it is expected to pass soon and they hope to start development work before Christmas and this should take about 3 years. The hoarding is of great interest to the Society because it will display something of the history of both Lyons and LEO.

Peter Byford

Peter started work as a programmer on LEO III/1 at Hartree House in 1961 where he remained until 1965. He went on to a long career in IT at various companies including 25 years at British Gas-Eastern.

He writes: 'I became involved with LEO reunions and, in 1981, their organiser 'passed the baton' on to me. The LEO Reunion Society (later LEO Computers Society) was formed and despite many committee changes, no one has yet volunteered to take over as chairman. I have had excellent committee members (now trustees) over the years: I am just a figurehead touching the tiller from time to time!'

Your help requested!

The Society needs more volunteers to take our work forward.

Do you have some time and skills that you could offer us?



We have an immediate need for help in a number of areas. Just a note of context, both Frank Land and Philip Cleary resigned as trustees earlier this year for personal reasons and our secretary , Hilary Caminer, has explained that she will be resigning at the next AGM in June 2025. So – as you can imagine – there are some gaps we need to fill.

We are very keen to enlarge our group of active volunteers - new ideas and perspectives are always welcome. Indeed, if you know of someone, not necessarily a member, who might be interested in any of the roles listed below, please do spread the word! Direct experience of working with LEO is most certainly not a pre-requisite for these roles - just a lively interest. And, of course, now that most of us are familiar with working online, these tasks can be carried out from the comfort of your own home – no need to travel to meetings.

If any of the roles listed below appeal to you and you think you might be able to contribute to the charity's work, please do get in touch to find out more about what is involved - absolutely no commitment at this stage.

- 1. Minutes secretary:** to take notes at trustee/committee meetings and at the AGM – about 6 meetings a year. These are all conducted via zoom.
- 2. Newsletter editor:** LEO Matters is published twice a year – currently October and May. This edition and the next will be edited by Hilary, but she needs a replacement!
- 3. The website and LEOpedia** - our comprehensive listing of all things LEO-related. Trustee Vince Bodsworth currently takes responsibility for both these areas of work and could do with some assistance.
- 4. Promoting LEO on social media:** We are very aware of the importance of having a presence online. Philip Cleary used to work for us in this area and we need someone to take over this role.
- 5. Publicity for LEO – through talks and articles:** Neville Lyons leads our work in this field. Again, if this area of work appeals to you, we could do with your help.
- 6. Promoting LEO to students in schools and colleges:** If you have experience of working with young people, particularly in computer education, we would love to have you join our group working on ways to increase LEO's visibility to the younger generation.
- 7. Finally – LEO on display:** In our last edition of LEO Matters, we told you about our new focus on museums, libraries and archives containing LEO material. We want to find out what is where and how we can make it more accessible and appealing to visitors- in person and online.

Please do consider whether you might be able to contribute to the work of our charity in any of the ways listed above. Or, indeed you may well have some other ideas – please just get in touch with Peter for an initial chat about what is involved.

Collecting LEO treasures an ongoing enterprise!

Very many of you have kindly donated your LEO memorabilia to the Society over the years and we continue to welcome news of more to come. Most of the material collected has now been deposited on long loan to The Centre for Computing History, Cambridge as part of their LEO archive. Some of it is on display in the gallery there and much more has been catalogued, indexed and some digitised and available to see online at:

<https://www.computinghistory.org.uk/pages/52267/LEOPEDIA>

LEOpedia, as many of you will know is our attempt to gather together in one place of reference all things LEO – papers, memoirs, artefacts, news cuttings, oral histories etc. There is some truly fascinating material to be found in this online archive. The Search box on the front page of the CCH website is an easy place to start your exploration of our archive. So, for example, you could try searching a name and see what is there.

Recent new acquisitions from the Pinkerton family

In September, Peter Byford and Hilary Caminer met Liz Wheatley and her husband Mike, the daughter and son-in-law of John Pinkerton. John was the original design engineer for LEO and although some of his papers had already been deposited in archives, we were pleased to accept a collection of books, papers, articles, a small piece of LEO I and, of particular historical importance, a large schematic drawing of LEO I made in May 1950. Interestingly, we note that the person who made this fair copy, was Jean Cox one of John Pinkerton's team who died earlier this year and whose story is told in this edition in the article on page 4.

We are most grateful to the Pinkerton family for their generous donation of these items and are now working hard to ensure that they all take their place in our archive.



Liz Wheatley hands over her father's LEO material to Peter Byford



John Pinkerton (left) receives gifts from Peter Byford (Eastern Gas) to mark his 35 years in computers

Newspaper cutting reporting the 1984 reunion

'Storm Mavis' announced by the Met Office Mavis Hinds and LEO

by Hilary Caminer



Mavis Hinds



It's not often an honour takes the form of the Meteorological Office naming a potential storm after you – but that's exactly what happened at the end of August. The Met Office just released its storm names for 2024/5 - and much to our delight we find that Mavis Hinds – one of the very first users of LEO way back in 1951 is on the list.

<https://www.metoffice.gov.uk/weather/warnings-and-advice/uk-storm-centre/index>

A little background about Mavis and her work with LEO:

Mavis Hinds (1929 – 2009) was a maths graduate from UCL who joined the Met Office in Spring 1951 and became part of their Forecast Research Division working with Fred Bushby. They realised how very useful a computer could be and as early as winter 1951 they managed to acquire time on LEO I. Lyons were finding out very quickly just how many applications their new 'electronic calculator' had.

In 1981, Mavis wrote in the Meteorological Magazine of her connection with LEO:

'The first project to be attempted on the computer was the production of charts....it is interesting to note that the machine took 3 mins to read in the programme and data , 1 min to perform the calculations and 1.5 mins to print the results , compared with manual methods taking 4 to 5 hours.. Most of the computing was done during evening sessions at Cadby Hall with assistance from the staff of Messrs J Lyons both in operating the computer and the provision of supper in the managers' mess.'

The Head of the Met Office at that time was very pleased with the work Mavis was doing with LEO. It is undoubtedly the case that modern weather forecasting is hugely dependent on computer power and we can feel proud of LEO's contribution right at the dawn of the electronic age.

Last year, the Society was contacted by Tim Sneller who lives in Bracknell and had become a good friend of Mavis. She had no family and left all her LEO related material to him. I went to meet him and brought back a fascinating treasure trove of over 22 paper tapes, containing programs and data in pretty good condition. There were also various magazine articles and letters from and to Mavis and some unused punch cards - all of which material is now safely archived at CCH.

We are not sure whether it is appropriate to 'look forward' to a giant storm – and, as M is midway down the alphabet, Storm Mavis is unlikely to be coming too soon – but we are delighted that Mavis's work has been celebrated in such an imaginative way.

Hilary Caminer

Hilary Caminer is probably the only Trustee with a totally non-technical background. Now retired, her career was teaching English in higher and further education, most recently at the OU. As the older daughter of David Caminer, a LEO pioneer, she has lived alongside the LEO story all her life and, wanting to help preserve the heritage of this amazing invention, accepted an invitation to join the committee. Her work for the Society includes acting as Honorary Secretary, editing the 'LEO Remembered' anthology, editing 'LEO Matters' and being a member of the Steering Group for our joint Lottery-funded project with The Centre for Computing History, Cambridge.

Remembering one of the original LEO team Jean Elliott (nee Cox)

13th January 1928 – 14th March 2024

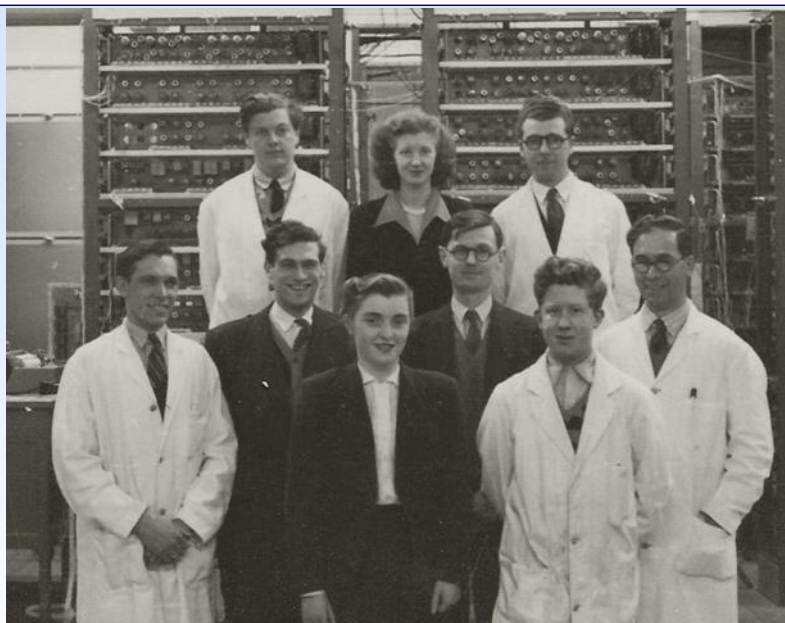
The Society was sad to hear in March from Kerry Elliott that her mother, Jean, had died aged 96. Jean's face is familiar to many of us from this group photo of the LEO build team taken in 1950.

Here is a brief account of her work with LEO gathered from her article in LEO remembered 'Working in the early days on Thompson's Folly' and from her very interesting oral history interview in 2017 by with Dr Elisabetta Mori which you can listen to here:

[https://www.computinghistory.org.uk/det/53391/Jean-Cox-\(Jean-Elliott\)-Interview-17-July-2017-53391](https://www.computinghistory.org.uk/det/53391/Jean-Cox-(Jean-Elliott)-Interview-17-July-2017-53391)

We would also like to thank Jean's daughter Kerry for her help in compiling this piece.

Jean was born in 1928 in Margate, Kent and won a scholarship to the local grammar school, but with the outbreak of war the school was evacuated to Stafford. She did well at school and entered the sixth form, but war again disrupted her education. The school moved back to Ramsgate though by then her family had left there and was scattered - her father and brother at war and her mother doing war work in Worcestershire. Jean left school and went to live with her mother working locally as a civil service tax officer. She wanted to move to London and gained a transfer to Somerset House, living in a bedsit in Acton. She loved London (especially theatre-going), but found her daily



*The LEO build team in 1950: Back row: Gordon Gibbs, Jean Cox, Wally Dutton.
Middle row: Ray Shaw, Ernest Kaye, John Plinkerton, Ernie Lenaerts.
Front row: Miss B Plant and David Wheeler*

commute long, so when a cousin's husband who worked for J Lyons suggested she apply for work there, she did and was appointed in 1947 aged 19, as a clerk in the Bakery Sales Office. Once there she saw an advertisement for management training, and, although these positions were usually only for men, she was selected and took on a variety of roles in Bakery Sales, including taking groups of visitors on tours.

In her 2017 oral history interview, Jean says 'I don't honestly know how I came to work for LEO' but she became a member of a tiny group led by T R Thompson working on what was nicknamed 'Thompson's folly' at the time. She had no technical background, had never heard of computers and hadn't any idea what binary arithmetic was. Her roles were to take accurate notes, keep an inventory of the stores and to make fair copies in Indian ink of the drawings and schematics devised by the engineers. In fact, the Society has recently been gifted one of these drawings from May 1950 with Jean's signature on it below that of John Pinkerton – (see page 2). Jean remembers that the group even allowed her to do some soldering so she would have a hands-on role in the creation of LEO. A little later, she was given a 'young lady assistant' who appears in the group photo, named as Miss B Plant. Miss Plant, Jean recalls, had been a nurse, but had contracted TB and was no longer deemed suitable for a medical role. (Editor's note: If anyone has any further information about Miss Plant, we would be interested to hear from them.)

One of Jean's tasks each day was to turn on the big power pack that LEO used. She was particularly enthralled by the memory tubes and felt it was 'almost magical' that information could be stored in that way. The time for LEO to be ready for work approached. Jean remembers the 'very beautiful' Princess Elizabeth visiting Cadby Hall and seeing LEO in February 1951 and also attending the dinner held at the Trocadero, a Lyons restaurant, in May that year 'to celebrate the successful demonstration of clerical work by the calculator of LEO.' Among her keepsakes from that time is a menu signed by all the LEO pioneers

But Jean didn't stay to see LEO fully up and running. During her time at Lyons she had married and, expecting a baby, left Lyons in the summer of 1951. She spent the next 16 years raising her family – an opportunity for the close family life which the war had denied her as a child. Later she worked as a school secretary and then for her husband's joinery firm.

Looking back in her nineties, she remembered her LEO days as a happy and exciting time, working in a close-knit and friendly team. 'I knew the work was ground-breaking but not how revolutionary it would be. I had no idea of the scope, and am glad to have been a small cog in the wheel.'

Ken Abbott 1941 - 2024

We were sorry to hear the news from his daughter Lorena of the death of Ken Abbott in April. Ken was a much respected instructor at Minerva Road in the 1960s. He later went on to work for English Electric LEO and left ICL in 1969 for a busy and eventful career in computing which took him all over the world.

Some words from his daughters, Carolyn and Lorena, and his wife, Rosemary:

He joined LEO straight out of school – he was 18 and had decided not to go to University. A careers advisor knew of LEO, situated in offices above the department store in what was known as "the Whiteleys Building"; the advisor thought that computers were "up and coming" and that Ken would be well suited to working with them. This was 1960, he was living in Streatham at the time and after marrying Rosemary in 1963, they first moved to Staplehurst and then to Cambridgeshire following Ken's work.

He told us: "I joined in 1960 as a programmer and worked on Leo II before joining the Leo III team as a Test (diagnostic) programmer"

His interest in computers extended to his children as they recall visiting him at work, and getting computers at home. Lorena has IT qualifications and an exhibition of LEO and other computing history which Ken helped host when displayed.

In his reminiscence in 'LEO remembered', Paul Kelley describes his first week at work in July 1964 when Ken, as a senior instructor took new members of staff on an induction tour of the premises and to visit one of the LEO III systems in the process of assembly. Paul then went on one of the last LEO II courses also conducted by Len.

Paul remembers: During the ensuing months I became au fait with the major subsystems of LEO III and soon began earning my keep by conducting the corresponding modules on the LEO III engineering courses then in progress – and wherein Ken did the software bits.



Ken at work in Radley House, Ealing early 1960s

In this endeavour Ken Abbott was really helpful. He was, by background, programming not hardware oriented having spent some earlier time writing test programmes for LEO III before joining Engineering Training. However, he had a detailed grasp of how the μ programmes implemented the instruction set and how the Coordinator controlled the timing of this implementation. Whereas the rest of us came at the system from a circuit-to-logic approach he had learned it via logic-to-circuit, albeit stopping short of the actual circuitry per se. He was infinitely patient, never flustered and was one of the best instructors I have ever known. In fact, when teaching programming, he was almost too good. His explanations were so structured and clear that he made it seem simple. But, having followed everything he said in a lecture with no difficulty, recreating the 'crime' by oneself afterwards made one realise how much one had missed - even though he had covered everything. He was magic in front of a room and was highly respected by one and all.

Starting out with LEO

Computer Operating as a training ground for general management

by Mike Canton

I left grammar school at 16 and got a job as a statistics clerk whilst I took A levels at night school. When I passed my exams in 1960 I decided to try and identify a rapidly expanding field in which to work, and computers was an obvious choice so I applied for a job at Leo Computers. At the end of the interview they asked me if I had any questions and I said that I had never seen a computer so could I see one. So they took me along to a viewing window where I could see into a vast room filled with strange machines and rows and rows of banks of electronics.

I started working as an operator on Leo I at Cadby Hall in 1960 aged 19. Leo I was big. Enormous. But also very fragile. The thousands of thermionic valves each only had a working life of a few thousand hours so failures were frequent, despite the engineers' efforts to weed out those near the end of life by stress testing every few hours. The mercury delay lines which comprised the storage were very susceptible to vibration. Much of the skill in the job was saving as much work as possible as one went along so that after a stoppage one could go back to the last restart point instead of back to the beginning. Some days the time the engineers spent on the machine rivalled that of the operators. However there was plenty of off-line work to keep us occupied when the computer was down as all files were on punch cards. An update run would read in the brought forward file on cards and punch out a new carry forward file. This involved a lot a sorting and filing of cards. Training was almost entirely on the job and it was up to the shift leader to bring new staff up to speed. Although only a callow youth I was counted as a manager for the purposes of using the Managers' mess when on night shift. The night cook was as mad as a hatter but a brilliant cook and I still remember his jam roly-poly made with shortcrust pastry.

Later I moved onto Leo II/5 at Hartree House. One day Bill Steele the Operations Manager (a lovely man) brought along a new recruit, a young Portuguese lad, to join my shift. I started him off on a card sorter and I soon noticed that he wore a glove on his left hand and never used the fingers of that hand or grasped with it, and I surmised that it was a prosthetic. I



Mike Canton at work in Cadby Hall circa 1962

went to see Bill and asked him if he realised that the chap only had one hand. He did not believe me but hauled him in and found the truth. He was allowed to stay on and it was amazing what he could do with one hand, using the prosthetic just as a prop. Does anyone else remember him, possibly the only one handed computer operator on the world?

In 1966 I went out to New Zealand to the KDF6 Bureau. This was a shared undertaking by English Electric Leo and a local newspaper called "Truth". So without me doing anything my employer changed from a UK computer manufacturer to a New Zealand rag. In 1969 I returned to the UK but that was the end of my involvement with Leo.

It is generally thought that Operations was inferior to Programming, but this ignores one important point. I was a shift leader at 21, most of the time I was the most senior person on site. I had to develop man managing, scheduling and work flow skills etc. By age 25 I was a manager. These early learnt skills proved invaluable to my subsequent career, as I moved out of IT management into general management up to a senior role in a giant multinational.

Mike Canton

Mike (now Michael) Canton, has had a long and eventful career in computing. His early days with LEO gave him an excellent start.

After leaving LEO, Mike continued to work in IT and in 1976 joined Panasonic as IT Manager and stayed with Panasonic for the rest of his working life, progressing out of IT into general management ending his career as Managing Director of Panasonic Norway. He found time for sailing, golf, bridge and genealogy and retired to rural Somerset.

Musings of a computer engineer

by Don Mitchell

I left school in 1958 and started an Electronic Apprenticeship, going to college to get an ONC in Electrical Engineering. After 4 years I felt that I needed something more and saw an advert for Computer Engineers with a company called LEO.

I started training in December 1962 as a Peripheral Engineer on Leo III equipment, at the end of my training I was helping to commission the hardware.

Once LEO III/5 was up and running at CAV in Acton I started work there on a 24/7, 3 shift basis doing routine maintenance and repairs.

Once on a Saturday morning the Walter Kidde engineer was testing the system, and when he had finished testing he went along pressing a row of RESET BUTTONS - unfortunately the next BUTTON was RELEASE which he pushed, you have never seen us engineers move so fast.

After 2 years I transferred to LEO III/1 at Hartree House as a senior Peripheral Engineer. While I was there, I recorded some music being played on the Leo III, I worked on it and now some of it is on the Leo website.

After a while there I joined Tech Support under Jim Rolf, the chief mechanic. This meant I was on call and needed a telephone, so LEO paid to have one installed in my parents' house. My patch was London and the South East.

One visit was to Marconi in Chelmsford to sort out a paper tape punch. This was just after the takeover of Marconi: on my first day there I ate in the directors' dining room, on the second day I was invited to the managers' dining room and on the third day I was shown the staff canteen. During my visit the building was struck by lightning, but fortunately no damage was done to any of the computer equipment.

At this time, I was approached by Tech Support saying that National Physical Laboratory had approached us to say that they wanted LEO/English Electric to maintain all the Data Preparation Equipment over the whole Campus covering 2 sites. They had a KDF9 on site. So the line of my career turned away from LEO and I went on to work in a number of firms as a computer engineer in sites across the UK and even in Dubai

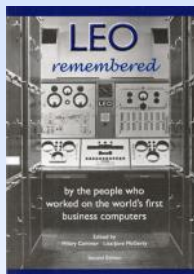
So one way or another I feel as if I have had a good career in computers. I have stayed around computers all my life starting out with LEO.



Don says:

'One way or another I stayed in the Computer Industry all my life. I was very lucky that I enjoyed every minute. My last job was working on complex spreadsheets on Cancer pathways at my local hospital. I am married with 4 children and 5 grandchildren.'

If by any chance you have not yet acquired your own copy, please do – we are sure you will enjoy it and your purchase supports the Society's work.



This edition is, as you probably know, a second, much enlarged version of the original 2016 book. This new version has well over 80 contributions from people who worked on LEO computers from the very earliest days – even before it went live- to those who worked on later machines across the UK and around the world. It is illustrated with temporary photographs. The book has a foreword by Dame Stephanie Shirley CH, a good friend of the

LEO COMPUTERS SOCIETY

Registered charity: 1182253

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The Society. We, as editors, are very excited about the book and feel that it really gives an excellent insight into what work on this pioneering computer was really like. The book received excellent reviews – and we hope that all our members will buy a copy! The book is a paperback, A5 size with 244 pages. The price is £8 per copy plus p and p – which will obviously depend on your address.

Order from: secretary@leo-computers.org.uk