Opening Webpage of the new LEO Website

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Message from our Chairman   –   Peter Byford

I won't say much about the pandemic, just to repeat what I said in in April that I hope you are keeping safe and well.

The Society is determined to continue its activities as far as we can, despite the pandemic. Zoom is enabling us to continue with our communications and to manage our activities reasonably well as can be seen by some of the articles in this newsletter. You will see that we are trialling some online get-togethers via Zoom and we hope that you will be able to join us.

Lisa McGerty and the team at the Centre for Computing History, Cambridge provide an update on the Heritage project, and Chris Monk details progress on the fascinating LEO I Virtual Reality project.

We are trying to encourage ex-LEO III programmers and others to try their hand at writing Intercode programmes on the LEO III emulator. Ken Kemp tells you about this.
In the mid-nineties Bob Stevenson designed and built our excellent website and has been maintaining and improving it ever since. The website has been and still is being accessed by people from all around the World and is an important part of the Society's publicity strategy providing news about the Society's work and LEO generally. Bob is now retiring from this post and the Society thanks him for this dedicated service over around 25 years. He is handing over to Vince Bodsworth who has been building a new website that will be more flexible and easier to update, he tells you about it in our next article.

As most of you know, we have postponed our next Reunion until Sunday, 18th April 2021 at the Victory Services Club,

London. We hope that some sort of normality will have returned by then enabling it to take place. We have been running reunions since 1978 and we have been delving into the archives and found a report of the 1984 Reunion.

You may recall that in the last newsletter we published the first of our articles about LEO heroes, or pathfinders, that time about T Raymond Thompson (TRT). I am glad to say that this month's pathfinder, Ray Shaw, is still with us and is a regular visitor to our Reunions.

Ex LEO I engineer, Stan Evans has penned an article called Saga of LEO I at Cadby Hall. We also have included some extracts of responses by members and others from appeals and publications.
As you can see we are very busy and we need more volunteers, we tell you the main areas where we need your help please.

The last part of LEO Matters introduces you to the 9 trustees on our charity board all working hard on your behalf. I would here like to thank Mike Storey, who recently stood down as a Trustee and committee member, for his many years of hard work for the Society. I am delighted to be able to tell you that he plans to continue working for our benefit as a volunteer.

Finally I must express my thanks, on your behalf, to Hilary Caminer for editing another superb newsletter, all those

who have provided articles for it and Bernard Behr for publishing it into another attractive copy of LEO Matters which I hope you will enjoy.

Update on the Heritage Lottery Fund Project

by Lisa McGerty, Project Manager, and Jude Brimmer, Archivist at the Centre for Computing History

Since the last edition of LEO Matters, we have made great strides on the Swiss Rolls, Tea and the Electronic Office project. A really good archive of historical LEO memorabilia is coming together and we are moving ahead with creating a range of ways of accessing and understanding this fascinating historical material. We hope to make it as easy as possible for new people to find and learn about the LEO story, as well as appealing to those – like yourselves - who already know of LEO's history. We now have over a hundred archive boxes in protected storage at CCH and Jude Brimmer, Project Archivist, along with myself and a dedicated team of volunteers, have been busy (despite the pandemic!) cataloguing, scanning and researching the documents, photographs and other materials in the Society's collection. To see what we're doing follow the LEO project link from the museum's homepage at *www.computinghistory.org.uk*, from where you can keep up to date with our progress via the LEO Project Blog.

As well as forming part of CCH's usual museum catalogue, the fledgling LEO archive now also forms part of the CCH version of LEOpedia so that we can keep all the invaluable evidence of LEO's contribution to the history of computing together in one place. Frequent conversations about documents in the archive are prompting a wealth of memories about LEO from Society members and this process is truly unique work for a museum to be involved in.

We so rarely get to work together with the very people who created the historical moments that we are documenting!

One of our biggest achievements of the lockdown period has been commissioning the final work on our virtual reality LEO I – probably the most groundbreaking part of the project. Education expert Chris Monk, along with his son Richard, who developed the prototype VR LEO I during our development phase in 2018-19, have already started work on the new system having put in a first class bid to win the contract to produce the final systems. Chris's knowledge and passion for LEO, along with Richard's first-rate technical skills, stand us in good stead for creating a truly innovative insight into LEO I. Chris and Richard have contributed a separate article to this edition of LEO Matters to tell you more about their progress and plans.

We are also soon to commission a new documentary film about LEO, have plans for some LEO-related learning resources for schools and a series of LEO events/talks are in the pipeline – once the world has returned to some semblance of normality anyway. The museum is still currently closed due to the virus, which has been challenging for us, but being able to continue with a project as interesting as the LEO one has been a real boon to us during these strange times. We would like to offer heartfelt thanks to all the Society's members for their support during our period of closure, and rest assured we hope to reopen soon.

Notes on Lisa McGerty

Dr Lisa McGerty was one of the founding trustees of the Centre for Computing History, Cambridge and is currently employed as its finance officer. She has an academic interest in the social impact of computing and a personal passion for LEO computers. She curated an exhibition on LEO in November 2017. Following the submission of our initial successful National Lottery Heritage Fund bid, Lisa is now leading work on the LEO heritage project at CCH with the Society, helping to unlock the stories within what she is sure will become a unique archive.

LEO vr: Reimagining the Calculator Room

Chris Monk, VR project manager brings us up to date on progress in building a 'virtual reality' representation of LEO I

LEO I is a lost machine, despite its important place in the history of UK computing. Gone too is the 'calculator room' it was installed in, the working environment that surrounded it and the WX building where it was located on the second floor at Cadby Hall, Lyons 13 acre 'HQ' site in Hammersmith. Very little remains of this piece of our computing heritage, so how do we help describe this remarkable achievement of technology and business to future generations with more power in the smartphone in their pocket than the LEO engineers could ever imagine?

Computer technology itself may have an answer in helping us recreate that room and the machine as a virtual representation that can be displayed through a VR headset or simply on a tablet device. Could we offer people a chance to once again, explore that room at Cadby Hall and sense the 2,500 square feet of a computer installation that would help change the business world forever?

After a successful development year establishing whether the project was viable, we have now begun to build a virtual representation of the room at Cadby Hall, that will contain the 21 racks making up the LEO I computer and much more.

The work divides down neatly into solving two problems. Firstly, could we gather all the information we need to build a reasonably accurate representation of the calculator room and its contents? Secondly, could we use modern software applications to model the room as a virtual reality application? We are making good progress on both of these fronts.

The photographic evidence of LEO I within the calculator room has been outstanding. Beyond our wildest dreams, 106 photographs have been found that record what the room looked like. Number 106 came in just a few weeks ago and I am sure there will be more.

If you would like to see the photographs we have found then please access the LEOIPhotoApp here:

http://www.computinghistory.org.uk/leodev/photos/

Simple to use, it plots the approximate position of where every photograph was taken from and the direction the photographer was facing. The photograph collection has been an excellent resource to help us model the calculator room and its contents.

Accessing the project blog here:

http://www.computinghistory.org.uk/sec/55718/Project-Blog/

You can read more about how we have used the photographs and the challenges they present.

Aerial photography taken in the 1930s and 1940s has also helped us establish where in Cadby Hall the WX Block was

and what the LEO users might have seen outside the windows. The 'room with a view' story using the aerial photos can be found here:

http://www.computinghistory.org.uk/det/61269/A-room-with-a-view/

Rebuilding the calculator room has taken a lot of work using some original plans submitted by Lyons to the London County Council in 1949, to show 'proposed alterations on second floor for installation of electronic computor (sic)'. Photography has helped us rebuild the walls, columns, doors, windows and lately the false floors, ventilation system and of course the LEO racks.

With help from the excellent memories of past LEO I users, we have been able to understand much better how parts of the room not covered by photography, were used. In the end this will be as accurate as the evidence will allow, plus some educated guesses where all else has failed.

Sometimes the photograph presents as many questions as it does answers. Stan Evans kindly sent me the photograph above (number 103), with a memory of the faces but not the names. Can you help?
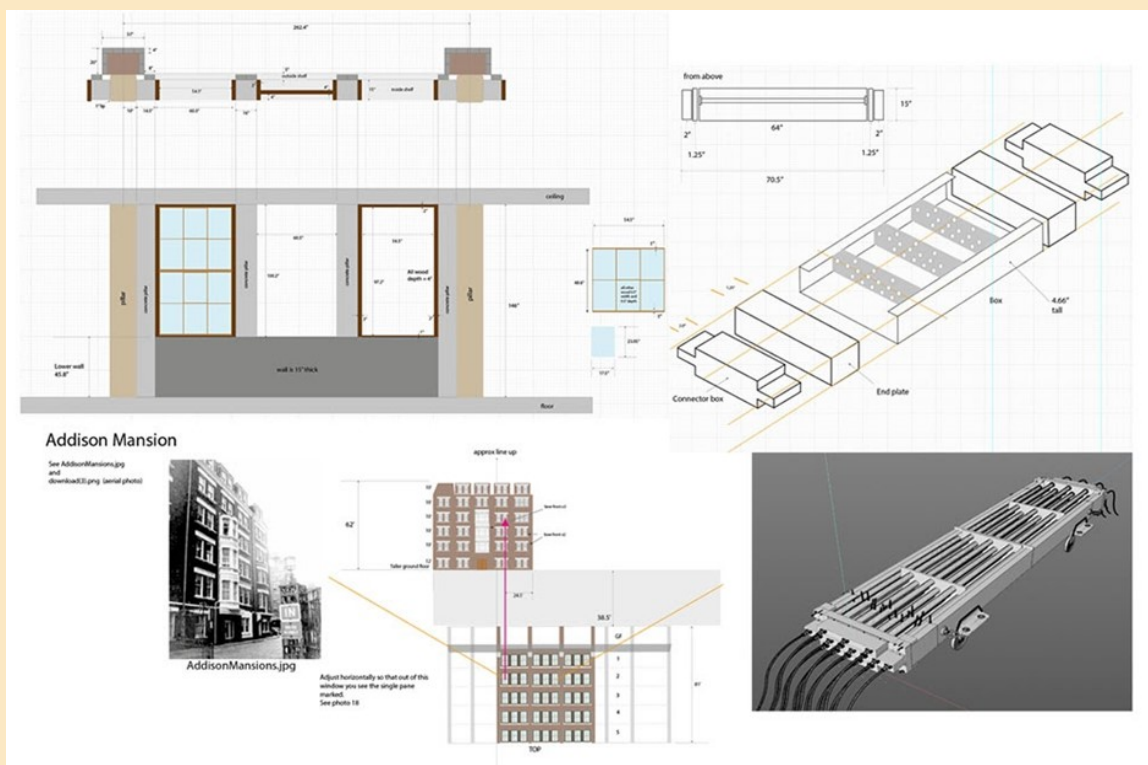
We are close to completing a 'first iteration' for the calculator room that will give us a model to test on modern virtual reality equipment and a tablet. We will be able to try out our ideas for an interface and how we intend to 'seed' lots of LEO-related information around the room to be discovered by future users.

The contents of the room will include documents found as they lay on a desk for example, plus opportunities to pick up items you find as you explore the installation. Much research is now needed to finalise the contents of the room and how it will be presented to future users.

Challenges remain around the peripheral devices and seeking good photographs of these early punched card and paper tape machines that will need to be rebuilt as models inside the computer! What about colours? What about the sounds of LEO, from the loudspeaker that continuously chirped to the instructions LEO was obeying to the noisy printers and card punches? Of course we must include 'people', critical to the development and operation of LEO I of course. All work yet to be done.

Covid-19 has restricted our research somewhat and with a coming difficult winter, much work has to be done at the computer, poring over old photos, documents and people's memories rather than visiting archives across the UK.

I want to pay a special tribute to the LEO I people who have generously given their time to answer my endless questions and to reassure them that I am coming back with more! The response has been extremely useful and always fascinating.

For those of you who may be interested we are constructing the virtual models of the contents of the calculator room in a software application known as Maxon Cinema 4D and then assembling all the models into a virtual reality environment using Unreal Engine.

Notes on Chris Monk

Chris is an educationalist spending 17 years as a teacher and advisory teacher of Mathematics and Computing. More recently he has helped develop learning experiences for students at The National Museum of Computing, Bletchley Park, and at The Centre for Computing History (CCH), Cambridge. Chris is passionate about developing ways that our computing heritage can help inspire new generations of young people to explore and learn about technology. He has taken a personal interest in the story of LEO I and supported the development work at CCH.

Running Intercode Programs on a PC

by Ken Kemp
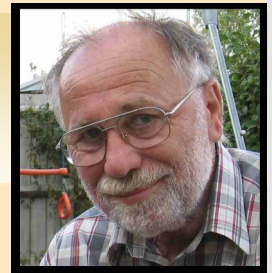
My colleague, Ray Smith, and I were both involved in the project led by David Holdsworth, to successfully resurrect the Intercode translator and Master program and be able to write and run intercode programs on a PC. The starting point was rescued copies of original LEOIII software and the result was the ability to run original software on emulated LEOIII hardware. When, over a year ago, some people were suggesting a CLEO compiler should be written, the question arose as to why nobody was using the resurrected software. Ray and I thought the reason was that requiring to have both operator and programmer knowledge to run the full emulation was expecting too much initially, especially as very few LEO programmers ever had operator experience.

During the development of the full software, there was an interim stage before the Master program was re-engineered when it was possible to translate and run Intercode programs. Ray and I both used this for testing the translator and the LEO hardware emulation during the development phase. Without the Master program, some major features of the LEOIII computer would be missing (e.g. time sharing and input/output file handling) but the interim phase had some of these included as temporary measures. (e.g. input/output file handling without double buffering and error detection). Therefore from the programmer's point of view, Intercode could be translated and run without knowing how to operate the LEO.

We could see the benefits for future researchers of early computers, of being able to write and run archaic software. We decided to package up a sub-set of the software which would do this. As a test of the package, we thought we would recruit ex LEO programmers to try the package. If an experienced Intercode programmer could not make the package work, then our package would have little use, and Ray and I would have to revise our ideas.

Overview of the Package

The package was a set of files to be downloaded to the user's computer. It was assumed that users would be using a Windows computer, although the software could be run on other hardware. Thus all documentation only referred to the Widows environment.

The package contained essentially three elements:-

- A demonstration of translating and running a simple program

- Software to run the Translator, run the generated machine code and print the contents of simulated magnetic tape files

- A comprehensive User Manual

The demonstration was run by a single mouse click. A simplified payroll program was translated and run using simulated paper tape input to produce a printed listing of pay, and to write the results to a simulated magnetic tape file. The translator listing was also produced and a print of the contents of the magnetic tape file. All print outs were produced as .txt files for the user to view and print.

The purpose of the demonstration was to show how easy and fast it was to translate and run Intercode. For those familiar with Intercode, it was hoped it would be a nostalgic experience we would like them to repeat by writing their own programs.

The User Manual contained 16 pages which include sections on:-

- ♦ Descriptions and use of the software

- ♦ Recommendations for folders to be created for programmer's own use

- ♦ How to access the LEOIII reference manuals available via the internet

- ♦ How to create simulated paper tape files

- ♦ How to create batch files to run the various programs (e.g. Translator)

- ♦ The limitations of the software (e.g. floating point arithmetic not available)

- ♦ Advice on writing Intercode on Spreadsheets instead of paper forms

The existence of the package was circulated at the end of May to all contacts held by the LEO Computers Society inviting those interested to request the package. The package was sent out as a zip file email attachment. Although we anticipated a few users may be using email providers who reject zip files as being potential virus carriers, we were surprised how many had this problem. Arrangements were made to use an alternative method, which we will also use in future.

Analysis of Feedback

We were surprised and pleased with the number of packages sent out - eventually reaching almost 50. In early July we sent out a feedback questionnaire to all who had the package. Even after a reminder about the questionnaire, the number returned was only nine.

Of these, one did not use the package, claiming not to have a Windows PC.

One was a LEOII programmer with no experience of LEOIII.

One did not unpack the software.

Of the remaining six all set up and ran the payroll demo program, including one who used a Mac book computer. They all found this easy to do.

Three intended to write their own Intercode program.

Two have started to do this, but only one has succeeded so far. Of the six, these were two of the three with the longest experience of using intercode. Neither found technical problems with the package.

It should be noted that there is one other person using the package. He helped with the user testing of the package before release.

Therefore in total there are four people (including Ray and myself) who have used the package successfully to write and run Intercode programs.

Conclusions

Unfortunately with about three-quarters of those who had the package not returning the questionnaire, there is limited data to analyse. It is likely the majority have done little with the package as it is human nature to avoid answering a questionnaire when having to admit to doing nothing or very little.

We can only speculate on reasons for poor take up.

Judging by the number of the packages sent out, there does appear to be a significant interest amongst Intercode programmers in being able to write and run programs, but perhaps they would prefer to do other things in retirement than invest time and effort in re-learning how to write Intercode.

For the objective Ray and I set out to achieve, namely to provide a workable package, I think we can claim a success, based on the limited response.

Possible Future Activities

By the time this article is published, we should have contacted the three people who did, or intended to, write their own programs and we hope to encourage them to continue.

One development which is nearly complete, is to write a subroutine which can be included in any Intercode program to emulate the hardware use of the printer format tape which controlled the physical paper movement through the printer, and hence the line spacing.

If anyone was ambitious enough to want to write a typical suite of programs, without a sort program and the off-line print program (06060), it would not be feasible as these two programs were basic components in almost all commercial suites of programs. An original source listing of 06060 has been located and Ray has already made progress on re-creating and testing it.

If anyone who did not apply for a copy of the package now wishes to try it, please send an email to:

intercode@leo-computers.org.uk

requesting a copy, by including "*I am interested*" in the subject line.

```
              PROGM   123      1     1      HELLO WORLD
              ENTRY   100      3 RS         KSK

    CHAPS   1    100
    INDEX   2    1

    10000     PROCR  100       100    LOG OUTPUT
    10002     154    101      2  0  0             0     101    OUTPUT TO LOG
    10003     151             0  0  0             0            UNLOAD PROGRAMME

    10100     CONST  101       101    1
    10102       (A)HELLO;
    10104       WORL;
    10106       (A)D  (D)5.5.;                                 2 LINE ENDS

    10200     END
PROGRAMME   12301    SERIAL      1              CHAPS  2   FILES  0      TRAN.  AREAS  0

  F.PT.  NO       MOD. GP.  NO        PRIORITY  3        ENTRY= CH1/  16

  SIZE  OF  CHAPS    220    506      0      0      0      0      0

FILE  ID.     RTE.  TYPE      START  LOCN.    ALT.ROUTES   BLOCK  SIZE        CHAPT
  TRAN.  AREAS  START  LOCN.       CHAPT       SIZE
  SECTION.START
SWITCHES
ITEM+ CTRS
MR'S 4-20

CHAPT        1
  100=   16  101=  26 1003=  32 1004=  48 1005=  48 1002=  48
CHAPT        2     EXTRA CHAPTER

                 INTERCODE     TRIAL DATA   SERIAL NUMBERS OF INTERCODE REPORTS
     PT OMITTED      NO           NO
     DISASTROUS      0            0
     OTHERS          0            0

     MADE BY 08000 ISSUE 8  SERIAL   801 ON 13/ 9/20  SPOOL  8000
```

The printout above was produced by the translator running under Windows. An extremely small program was chosen so that a complete listing with summary machine code could be shown. Note the last line showing issue 8 translator was used on a run dated 13/09/20 during preparation of this article.

Notes on Ken Kemp

Following graduation, Ken joined English Electric Leo as a trainee computer programmer in Bristol in 1964, where the newly opened computer bureau was being run using LEOIII/35. Following the merger with ICT, Ken remained with the bureau as head of systems and programming. He stayed in Bristol working as a project manager or software manager with several national companies until retirement. His LEO activities were re-activated when a printed copy of the Intercode Translator was discovered and David Holdsworth decided to resurrect it. He was one of a number of people who keyed in a copy of the Intercode from the listing. He later wrote a number of small Intercode test programs and has contributed to the digitising of the LEO Manuals, the last of which (volume 5), he is just about to start on.

A new website for the LEO Computers Society

by Vince Bodsworth

In his introduction to this edition of LEO Matters, Peter paid tribute to the work of Bob Stevenson in managing our current website over the years. Here Trustee Vince Bodsworth who has taken over the role of website manager explains how and why our website will shortly be showing off a new look.

Much consideration was given for the decision to redesign our website. The reason principally revolved around three major issues.

- Firstly, technology has evolved considerably since our original website was conceived. The rapid growth of Smart Phones, Tablets and other devices all of varying shapes and sizes all accessing the Web meant that scaling and formatting had become an increasing problem. New techniques were developed to ensure that web pages were legible to the viewer regardless of the device being used.

- Secondly, the need for both security and privacy in a "members only" area was of particular importance. This will enable us to have interactive discussions, postings and blogs not accessible to the wider public.

- Lastly, the original website required the manager to have a particularly sound grasp of HTML (Hyper Text Mark-up Language), a necessary prerequisite to make any additions, amendments or alterations. It is now reasonable to create and maintain a website using publishing type Programs and Templates which automatically convert and replicate into HTML format. There are several of these "High Level" programs, WordPress being amongst the most favoured.

The decision was taken to use the WordPress platform which encompassed all requirements mentioned above plus offering many other future proofing capabilities. Regrettably there existed no simple or easy method of transposing our existing website into a WordPress format.
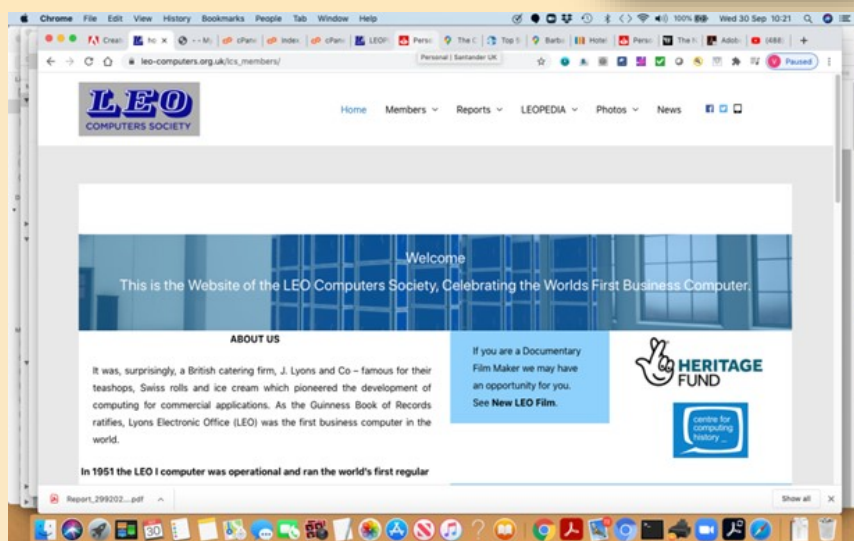
The process of transferring our existing data has now been satisfactorily completed as well as the initial (Alpha) testing of the new website. Shortly after publication of this newsletter members will be invited to try out and comment on the new website. Both old and new will run in parallel. This will be in essence our Beta test and your feedback and reaction will do much to enhance the site prior to "going live" – hopefully before Christmas.

Footnote: *WordPress is a free and open-source content management system which creates web pages from data held in a database. Features include a plug-in architecture and a template system, referred to within WordPress as Themes. More information can be found on Wikipedia. It powers by far the majority of commercial and information Websites around the world.*

Notes on Vince Bodsworth — See "Meet your Trustees" on Page 16

A LEO Reunions – past and future

Among memorabilia recently rediscovered is this account of the Society's 1984 reunion. We wonder if any readers were present – if so, why not let us know – especially if you have any memories that can add to our archive.

Meanwhile, Mike Storey is preparing for our next reunion scheduled for April 2021 – *some 37 years on*!

WERE YOU THERE?

LEO Reunion: 19th October 1984 – The Rugby Club, Hallam St., London

120 people, all ex-staff of Joe Lyons' own Computer company, met to renew old acquaintances and to celebrate old memories of the World's first commercial computer LEO I and its descendants LEO II and LEO III.

All five of the surviving LEO directors had been contacted. John Simmons, the man who proposed the original venture, is now in his eighties and was unable to attend, however he sent his best wishes.

Anthony Salmon and Tony Barnes also sent their good wishes but could not attend. Other apologies were received from as far afield as Canada, Germany and Hong Kong.

John Pinkerton and David Caminer were the two directors who did attend. They worked for ICL up until their respective retirements. It was interesting to find that one third of those present were current employees of LEO's successor, ICL. Amongst ICL "personalities" was Ninian Eadie who has survived the STC takeover as a director *(note: STC took over ICL in 1984 but this only lasted a few years until Fujitsu bought the company).*

Peter Byford talking to John Pinkerton and David Caminer at the event

The committee had gathered some memorabilia which was on show. Also showing was a short LEO promotional film borrowed from the ICL archives.

The BBC "chip shop" got wind of the event and were there to interview some of the old-stagers. The resulting programme was broadcast on Saturday, 27th October 1984. A copy of the programme will be provided for the LEO Reunion archives.

Dr. Pinkerton had been the electronics engineer recruited to build LEO I in 1949 and became Technical Director of LEO

Computers Ltd. when it was formed in 1954. He retired from ICL earlier this year.

A presentation to mark his 35 years in the "Computer Industry" was made by the organising committee. This consisted of an engraved pen and a specially designed card signed by all present.

Bottles of wine (Chateau LEOville, Jean LEOn Cabernet Sauvignon and Minervois (Minerva Road was the LEO factory) were given as prizes to:

Furthest traveller to the Reunion –	Roger Thorpe (Newcastle)
Earliest starter at Lyons or LEO –	Ernest Lenaerts (1947)
Longest server with LEO etc. –	Fred Barnett (1954 – present time)
Lucky number tickets –	Jim Hamilton and Ralph Land

◆❖◆

Our next LEO Computers Society Reunion – planned for Spring 2021

Mike Storey who leads our work on organising reunions reports on the latest state of play for our next gathering.

I'm sure you appreciate that the LEO Computers Society had no alternative other than to postpone the original October 2020 reunion date because of the impact of coronavirus. As we now near the end of 2020, we need to think carefully about when the reunion actually will be able to take place.

We currently have a reservation at the Victory Services Club, near Marble Arch, London, for Sunday 18th April 2021. The VSC was the well-received venue that we used when last we met in 2019. We had excellent feedback from members after that event and are greatly looking forward to our next occasion there.

With regret, and for reasons obviously beyond our control, we are still not in a position to confirm this date. We will have to wait to see what regulations are in force about gatherings and travel in the New Year. A final decision will, however, be taken in early January 2021 and we will let you know as soon as we can.

I would therefore ask that you put SUNDAY 18th APRIL 2021, in your diaries, on a PROVISIONAL BASIS. Please rest assured that we will organise the next reunion as soon as that is possible. We are certainly hoping that we will be able to gather together in 2021 – the 70th anniversary year for LEO itself.

Notes on Mike Storey

Following Mike was an EELM onsite shift engineer, working on LEO III/33, at Phoenix Assurance, for 2 years in the late 1960's. He then stayed in the IT industry for the next 40 years, before returning to his roots, when he started up a small engineering business.

A former committee member, he is now a LEO volunteer, and precision engineer, in semi-retirement.

Waiting for our next Reunion? Try this!

Trustee John Paschoud introduces a new initiative for the Society – online meet-ups using ZOOM!

We're all a bit fed up with having had to postpone our October Reunion. And, as you have read in the previous article, we will have to watch that our proposed April 2021 date can really go ahead. Some of the committee thought our only option would be to hold a reunion online. Then we thought, why not do both! Why not use online technology to link our members? So we wrote to you in early October inviting you to take part. Early feedback showed a good response.

Here's the invitation again and the reasoning behind our decision to take this step into virtual 'meetings'.

It will be a while before we can travel to central London for a nice chat and a cup of tea on a Sunday afternoon. Some of our members have found that to be quite a challenge at the best of times anyway, especially those of our many members who live outside the UK. The thing about our Reunions that many members thought most worthwhile was the opportunity to reminisce with each other. And as a bonus we discovered that keeping a record of those reminiscences on audio or video sometimes provided valuable material for our Oral Histories collection.

We held a very successful Annual General Meeting in June as a Zoom online meeting. Some of the members who participated had already been to a lot of online meetings by then, but for others it was their first experience. After we'd finished the legal business of the AGM several members wanted to stay for a chat with each other, and really enjoyed it!

So we're going to hold some more Zoom meetings, just so that members can have a chat! You'll need to bring your own tea - or whatever other tipple you fancy. But you'll only have to travel as far as the room your computer, laptop, iPad or smartphone is in. Or one of those you can borrow from a neighbour, friend or relative if needed. If you're a complete beginner at online meetings, there will be another member (or several) who can help you become a dab-hand! We might try getting the conversation started at each meeting with a short talk (maybe even a slideshow!) on an interesting topic. If lots of us want to have several different conversations (which would be only natural) then we can split the meeting up into several 'huddles'. We have NO IDEA what people will talk about... But it doesn't matter!

To start with we're offering four dates, with three of the meetings starting at 10:30am and one at 17.00 (UK time - although of course our members from further afield are very welcome too):

- ❖ Meeting 1: Wed 28-Oct at 10.30 am (*already held*)
- ❖ Meeting 2: Thu 19-Nov at 17.00 (5 p.m.)
- ❖ Meeting 3: Tue 15-Dec at 10.30
- ❖ Meeting 4: Mon 18-Jan 2021 at 10.30

You can sign up to join us on one of these dates using the online form at: *here*

We'll aim to invite you to the earliest date you indicate, but unless we're absolutely overwhelmed by demand, you can probably come to all of them if you want to!
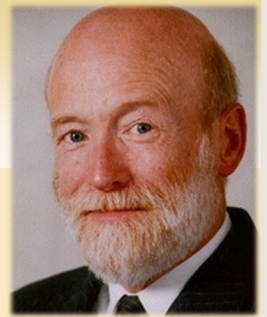

Zoom trustees meeting.

First ZOOM reunion meetup held on 28/10/2020. Courtesy Valerie Grosse

Notes on John Paschoud — See "Meet your Trustees" on Page 16

A One of the Originals — Ray Shaw

by John Daines

If you've been a regular at reunions over the years you've probably seen "one of the originals" – sprightly Ray Shaw, 96 years young, who joined the project in 1949. Here Trustee John Daines recounts Ray's story as told to him by Ray himself.

Ray was born in Ilford, Essex, in 1924 but the family moved to Sidcup in Kent soon after. He went to local schools and left in 1938 aged 14 to join a local electrical and mechanical engineering workshop where he used machine tools and started night school where he built a lathe. He then went to Standard Telephones and Cables (STC) at Footscray as an assistant to the Chief Chemist and was involved with the chemical side of radio valves. Ray met Mr Shannon who was involved with wartime gasses, which terminated. Ray then went with him to Electro Physical Labs, a company in Hendon where they were researching into aircraft noise and its transmission. After a short period, they transferred to another company (Vacuum Science Products) that manufactured photo-electric cells, which was common in those days, mainly in cinemas, for detecting the sound. Ray worked there until he joined the RAF at about eighteen. At the RAF interview they said that with his prior experience they thought he should be trained in radar. When he was in the Far East with the radar unit, he spent time thinking about how the radar techniques of signal processing might be used for other purposes. After the war he returned to the previous company and commenced a lot of night school over many years, ending up with qualifications in electronics and management. The director of the company suggested that Ray look for a more challenging job and Ray had been reading about early computer developments (ENIAC, ILLIAC) in Scientific American.

Of course, in those days all the British developments were top secret, having come from the work at Bletchley Park. In 1949, Ray saw a non-specific advert for a former senior NCO with radar experience.

Group 1950
Back Row: - G. R. Gibbs, Miss Jean Cox, W. H. Dutton
Middle Row:- R. T. Shaw, E. J. Kaye, J. M. M. Pinkerton, E.H.Lenaerts.
Front Row:- Miss B. Plant, David Wheeler.
Image 3 of 10

He went along and was interviewed by Pinkerton and Lenaerts who, again, were non-specific about the job but impressed that he knew so much about digital techniques and could describe the techniques they were interested in, like Boolean algebra. Pinkerton had been at the Radar Research Establishment and may have designed some of the kit that Ray had been involved with. Ray had no idea that Lyons were involved in this sort of thing but soon found himself as the third member of a small team that soon grew with Gordon Gibbs, and Jean Cox doing the drawings, so that by 1950 it had grown as shown below. Ray's job included designing test gear and testing the units, designed by Pinkerton and Kaye and

1999 Reunion – Kaye, Shaw, Caminer, Byford

manufactured by Wayne Kerr in Surrey, before they were assembled into the computer. One key thing he worked on was that they didn't function very well and this was because it had all been designed so that the layout looked neat and tidy. Running cables close together in parallel meant that there was capacitance and this interference caused signal loss and dropped bits. Ray worked on design changes to ensure that there was more point-to-point or random positioning of the wiring and this started to pay off, leading to improved signals. This all happened in Cadby Hall but a new building was obtained in Olaf Street, Shepherds Bush, for development work. As ideas for LEO II came together, Ray did design work on the revised storage system. By overlapping the pulses in the delay line, it was possible to have store access times four times faster than LEO I so that the processor didn't have to wait so long. A much faster machine without a major processor redesign, although there would be many other enhancements for magnetic tape, drums and eventually core store.

In 1957, as the LEO II design was established, Ray went to Australia to work for AWA but found the work uninteresting. He attended a part-time evening programming course at Sydney University that quickly led to a post as assistant to the Chief Engineer and then becoming a lecturer on a par with people who'd had an academic background but without Ray's experience and knowledge. Whilst there he designed the first system in Australia to use error correction codes. The magnetic tape backing store for the university's SILLIAC computer pioneered the use of error correcting codes techniques to minimise the loss of information due to magnetic tape flaws that resulted in digital drop outs.

In 1960, Ray returned to England as his father was ill. He joined English Electric (EE) in Kidsgrove and worked on KDF9 design but, after his father died, he wanted to move back to the
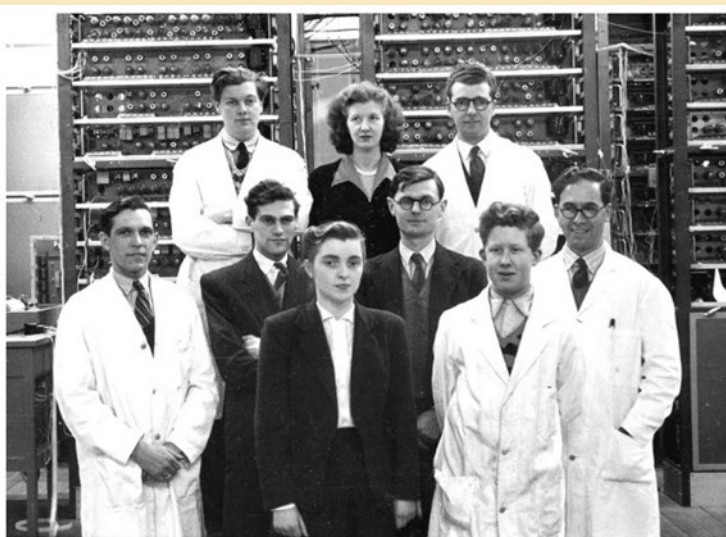
south-east so EE transferred him to their guided weapon group on a project that subsequently failed. By that time EE had taken over LEO in 1963 and he was transferred back to work for Pinkerton in the Minerva Road research group. His work was to look at data transmission and the development of error detection and correction codes. In 1960 the European Computer Manufacturers Association (ECMA) was created with a series of Technical Working Committees (TC's) to set standards across a range of aspects of computing e.g. programming languages, data codes and data transmission, TC9, where Ray became Vice Chairman. Over the years this group worked with the world standards organisations to produce the underlying technical protocols and methods that today support the internet. In the UK, Ray was involved with the GPO research people, trying to get them to implement techniques that would allow high speed data transmission over the traditionally noisy existing copper network. Also with universities that were setting up early wide-area networks.

Ray Shaw — Reunion 2016

In the late 60's it was now ICL and Ray joined the Advanced Development Group to become a trouble-shooter, sorting out problems in the field. As the 1970's went on he became a project manager, installing the Distributed Array Processor (DAP) at Queen Mary College, major systems for banking and the MoD including the pilot Opcon system at Northwood. From there he moved into a central marketing role, until he was made redundant in 1981, approaching 60.

After retirement he built a house in Lincolnshire and took up other interests like his large garden. He is a life member of both the British Computer Society / Computer Conservation Society and The Institute of Management. He is a member of the RAF Air Defence Radar Museum, IEEE History of Computing (Annals), British Society for History of Mathematics, the Historical Association, London Appreciation Society and Gresham College London. This keeps him busy and although it is difficult to attend meetings, the journals keep him abreast of events whist the gardening needs lots of help.

LEO II Group

LEO I Group

Here is Ray at the 2019 Reunion with the LEO II group on the left and the LEO I group on the right.

More recently, Ray visited the Centre for Computing History at Cambridge in November 2019 to see an early version of the LEO I virtual reality project.

This profile of Ray was compiled by John Daines, who joined LEO in October 1961 as an operator on the II/5 bureau in Hartree House and is a Trustee of the Society. He did an oral history interview of Ray in 2016 and remembers seeing Ray over the years from when both were at Minerva Road. It is based on that interview and a previous one by Martin Garthwaite in 2013. See "Meet your Trustees" on Page 15

Saga of LEO I at Cadby Hall

by Stan Evans

I never realised that my life was about to dramatically change when I went to Joe Lyons at Cadby Hall in 1956 for an interview for a job as maintenance engineer working on the first computer they had ever made. I was an experienced electronic technician but knew nothing about computer digital technology.

I was interviewed by the computer engineering manager Peter Mann. He asked me many questions but sadly I did not do very well with my answers. To my surprise and pleasure he offered me a job. It later emerged that all the other candidates had the same lack of knowledge as me.

What was unique about this computer was that it was the first computer worldwide designed to do commercial work. The other computers in use were basically scientific machines.

Lyons had formed a company called LEO Computers so in fact

I joined this company not Lyons. There were two other chaps who joined me the same day. Les Rabbitts and Stan Holwill. There were some senior engineers already on site - Frank Walker, Jimmy Wheeler, George Manley and a much older chap Chas. They not only had to mend LEO I but had to teach us rookies.

Although there were detailed schematics of every specific unit in the machine there were no written notes on the logic i.e. how the computer worked other than the hand written notes of our tutors. Our workshop was a 12 ft by 12 ft room located across the corridor from the Computer Room. To help fixing computer faults every unit type had a spare. I think they were called LCU xx. If a fault was traced to a specific unit and the fault cleared when replaced by the spare then 'Hey Ho' back to the operators and the machine was up again.

In the workshop the faulty unit was put into the Test Rack. This had simulated features to test the unit and find the fault. There was a very clever engineer called Gibson. He maintained this test rack and also was involved in the thinking about the next step - LEO II.

Also in the workshop were two ladies. One was very experienced and did all the electric wiring in the units (modifications etc). The other was a thermionic valve tester. She had a check list of units that had been operational for a certain time and checked all the valves and if below the maker's specification, she replaced them with a new valve.

The huge irony was that a development engineer called Lenaerts established that new valves were more likely to fail than the comfortably settled-in old ones. This testing of valves did not really do any good so this procedure was stopped. We were learning all the time.

There were two people we often worked with on the computer. They were David Caminer and Mary Blood (later Coombs). They were in fact the first Business Computer Systems and Programmers in the country and David led a small team of programmers who had written all the LEO I operational jobs since 1952 which was quite impressive.

Programmes were written in machine code format and stored in the main memory. This consisted of a number of long tubes filled with mercury. They were stored under the false floor together with a number of smaller tubes, registers that contained only one word of 17 binary bits. (Note: I am struggling here and hope I have got it right. I would think the main memory had 32 tanks and each tank 32 words.) I seem to recall a D30 digit. Perhaps that was LEO II.

Programming then was very basic. Cobol, Fortran etc was not even a dream in those days.

Mr Caminer's team had written several programmes which tested the machine's performance. When it failed, we were given the reason. If it did not fail, we used the margins tester. We had over 1,000 wires from the engineers' control panel going to the most crucial electronic sections in the machine. These wires sent electronic signals that increased or decreased digital pulse size. Use of variation of threshold often made the performance test programme fail. Using eliminating switches, it was a simple matter to find which unit was causing this.

In certain difficult faults Mr Caminer was a great help in typing in a simple programme which clearly showed what action was going wrong. The engineers were then able to get moving with the oscilloscopes and find the fault.
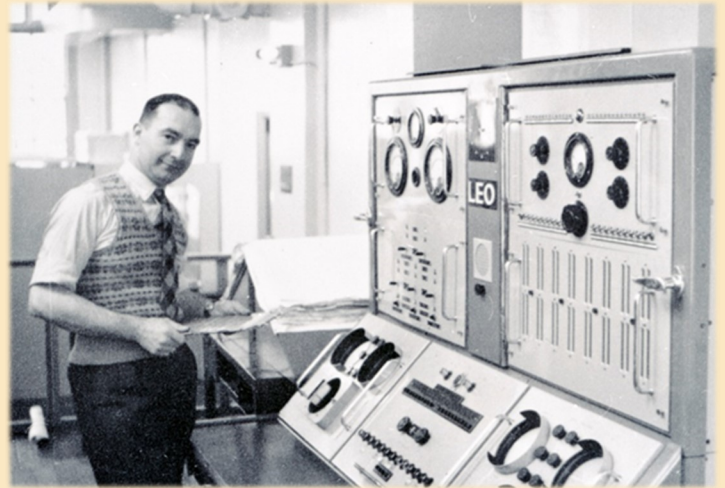
I enclose a picture of a young engineer, all of 30 years old, Stan Evans himself working at the LEO I engineers' control desk. It was here that the engineers and Mr Caminer did our fault diagnostic work. A small loop of a failing instruction made oscilloscope work easier.

It's interesting to note that the Operators rarely used the engineers' panel because at that time operations control was done using Punch Cards. These cards had been successfully used for many years for basic business tasks. They were 3 by 7 inches, had numbered columns 1 to 80 with rows numbered 0 to 9. Rectangular holes were punched out in each column.

To start a programme the operator would push a button called BOOT which placed into the computer Order Tank an instruction to read a card into the computer. This card contained the necessary instructions to read the complete pack of cards into the computer. These cards contained sequences of computer instructions i.e. the programme, and the scheduled commercial programme was then ready to run. The operators' area was dominated by three big heavy card readers, equally heavy printers and a paper tape reader.

The work load had got very heavy so we had to go to three shifts. I hated the nightshifts and I think in hindsight we would have preferred one week of nights and two weeks day/evening. However, we three new chaps were very rapidly promoted to Shift Leaders because the senior chaps were moved to Minerva Road factory where work on the next generation computer, LEO II, was moving very rapidly.

Doing nights did have one advantage. The Lyons management were very highly regarded and so were provided with an "out of this world" restaurant. Two lady chefs looked after the restaurant at night. I used to chat these ladies up. Most of us, the engineers and operators enjoyed a very basic level of living so a full roast and three veg was a real treat. I was often offered, if it was available, a Dover sole. I have never seen such a big sole since then. A quarter of an inch fish each side of the bone and the fish overlapping the plate. This is how the rich or talented lived. I missed that when I eventually moved from LEO I, so back to the real story.

Very soon the first prototype LEO II was completed and installed in nearby Elms House. Both Les and Stan had moved to Minerva Road but in spite of my pleading I was still

left in charge of LEO I. Something about 'good training in management' for me. Eventually LEO II / I was up and operational taking the commercial work off LEO I.

Transfer at last. No training course slot available so straight in as Shift Leader with new trained engineer Tony Morgan. I knew LEO I so well that the experience was invaluable when thrust onto LEO II and Tony was good. Hurrah.

The concept was almost the same but the electronic engineering had taken a massive jump forward. Not only was the machine considerably faster, it now had magnetic tape, which meant goodbye to loading programmes and storing data on clumsy punch cards. Delay mercury tubes were still used for the memories. So, given time and not too many nasty faults I soon settled in to my new job.

I was on LEO II / I for about 18 months when I was asked if I would be willing to move to East London and install LEO II/9. Consult with family and Yes. I was also able to help commission the machine at Minerva Road with a chap called Peter Ross before taking it out and installing it at Ilford (the photo people). What was unique about LEO II/9 was that the main memory was now stored in a new device called a Core Memory instead of bulky mercury tubes.

I should have realised with my past LEO career it would not last for long. My friend Stan Holwill had been made Area Manager and I was asked to take up the appointment of Area Supervisor to support him and in particular address myself to problems at LEO II / 5, the in-house LEO machine located in Hartree House.

There was a piece of new peripheral equipment being installed called Magnetic Drum but with good support from Minerva Road that ceased to be a major problem and it soon became fully operational. This was a Random-Access Device (RAD) that enabled a programme to zoom in very quickly for data instead of a long wait going along a magnetic tape. Disc Drives did not arrive on the LEO II's.

LEO II's were all thermionic valve machines with the inevitable problem of long periods of down time. There were still quite a few difficult faults on LEO II / 5 that required me motoring from Ilford to mend them (always late evening) but it was always satisfying to fix the problem and get back home again.

Reading back my report it's interesting to note that our memories are very selective. I read the LEO Computer Society members list and see that there were many chaps who I worked with and many others who sadly may have gone now who I do not remember. One thing I do know, LEO produced some of the most highly competent, dedicated engineers who were regarded as the best in the country.

My career path with LEO finished quite abruptly when Honeywell Controls advertised for engineers to start up a Computer Division. These computers were the equivalent of the LEO III's; no valves and fully transistorised. My golly what a nice change! So, after five years of very exciting times with LEO, I left and installed the first computer Honeywell had sold to Bournemouth Town Hall. But that is another story.

To finish my Saga here is a humorous story about LEO II/9:

Many years later all the LEO IIs were being replaced with LEO IIIs; fully transistor techniques replacing the unreliable thermionic valves. The machines had little value to the Scrap Merchants except for all the mercury in the old memory tubes. One such dealer thought he had bought LEO II/9 for a song! When his gang arrived to remove the machine he found to his horror NO MERCURY. It had a core memory.

Our readers write in…

Introducing a new regular feature for LEO Matters

We always welcome messages from our members and would like to make this a regular feature in LEO Matters. You might, for example, like to write in and comment on one of the items in this issue.

Over the past year, Trustee Neville Lyons has been placing articles about LEO in various retirement magazines and journals. We had an excellent response – and gathered a few new members to the Society whom we warmly welcome. As ever, we would like to remind you that we encourage people to write their LEO reminiscences for our growing archive at CCH – or to put themselves forward for a recorded oral history interview.

For our 70th anniversary editions of LEO Matters next year we would like to include as many contributions from readers as we can. Please write in!

Barbara Dickens read our article in the Shell Mex BP44 magazine and writes: "I was a LEO programmer in Intercode on the LEO326 installed by the Dept of National Savings. I started in 1968 and was trained by the Post Office trainers before working for DNS at Lytham St Annes. I remember the days very well as I did mainly maintenance which meant finding old code to delete to make room for any amendments. After a few years I moved onto ICL System 4 machines programming in Usercode and COBOL before joining SMBP and working in COBOL and machine code on Univac 1100 series. I eventually moved onward and upward into management and consultancy but I still remember my Intercode days and the carol tunes made from holes in the printer's format tapes." Barbara has now joined the Society and we look forward to interviewing her soon for her oral history.

We appealed for photos of members at work on LEO.

Andrea Kent sent us this picture showing her inspecting information from a Marconidata paper tape reader used for digital transmission. She thinks that the date was 1965. Another picture in the publication showed a posed model, but Andrea says 'hopefully I look a bit more as if I knew what I was looking at!!'
Does this photo ring any bells with readers?

♦

Also from the ''Swinging Sixties' is this picture sent in by **Fred Whittaker**, who now lives in Sooke, British Columbia, Canada. It shows him sitting in his office in Minerva Road 'pulling the strings on Mon General.'
Has any reader any more information about the film 'Hot Millions' that Fred refers to here?

Fred writes: I was a low person in the scheme of things at Minerva Rd. 1966-68 with a sort of admin role which meant strolling around the various engineering offices weekly and asking questions about timeliness of progress. This was logged and forwarded to a higher office in Kidsgrove. I guess it helped the chief engineers to plan the end products.

 When the end came and we all lost our jobs I got hurt....spine...was hospitalized and off sick for months. The company continued to pay my salary until I was well and found another job. My hat off to them.

One time I was phoned by MGM films who were enquiring about renting a main frame for the film 'Hot Millions' which came out in 1968, starring Peter Ustinov and Maggie Smith. The MGM producers came to Minerva Rd. to look around…. they had to settle for a second generation main frame which looked dowdy and was full of external cables etc.   They agreed to rent that plus an engineer to maintain it and so it went forward. I saw the film later and it wasn't very good.

I had a very good time there at Minerva Rd, and by meeting so many gifted engineers had an education nearly every day. A few of our colleagues were installing a main frame in Ostrava Czechoslovakia when the Soviet army invaded and took over the country. Our colleagues were eventually brought home after some delay. No harm done.

♦

Could you help the Society by volunteering some of your skills and time?

In his introduction, Peter Byford pointed out that the Society has entered a particularly busy period as we work towards ensuring LEO's heritage is recorded carefully and made known to a wider audience. As we have often pointed out this work is time sensitive- LEO's early workers are getting on in age and we need to capture memories before they fade.

The trustees and committee members carry out a wide range of tasks for the society, but we have reached a stage where we really do need some more help!

First of all, we need to point out that nearly all the tasks listed below can be carried out in the safety of your own home, thanks to the wonders of e-communication! Secondly, all the tasks will be carefully supervised by an experienced member of our existing team and we will offer you 'training'. We can't specify exactly how much time the tasks would take as this is flexible, but we do ask volunteers to designate a certain amount of time each week – doesn't matter when, but the important thing is to keep momentum going and to reach suggested targets.

So, what are these tasks – and what skills might you need? Clearly the most vital quality is an interest in LEO's heritage which your membership suggests that you already have.

1. **Becoming an Oral History interviewer.**

The task: Using contact details provided, arrange with potential interviewees a date and time for an online interview. You will receive detailed guidance on how to carry out the interview, complete with suggested questions and protocols to follow. We will ask you to ensure that the interview is carefully recorded and sent to our coordinator ready for transcription. We can provide you with sample histories to listen to.

The skills: This will require good people skills both in arranging for the interview to take place and in ensuring that you establish a good rapport with the interviewee. Note: Interviewing is fun - it opens up the past and provides memories of old and forgotten friends.

2. **Helping with LEOpedia listing work.**

The task: This entails ensuring that newly-found LEO-related material is entered on to our LEOpedia database in a timely way. Information will be sent to you and you will be asked to enter details in the right section of LEOpedia with accurate online links. It also involves spotting items of information you come across, perhaps when browsing the internet or in casual conversation with friends which have some relevance to the LEO story, noting these down and bringing them to the attention of our LEOpedia team.

The skills: This requires very careful attention to detail and an ability to categorise material appropriately, as well as keeping an eye open for new stories. Note: The work is more than a chore. Discovering hidden references to LEO gives enormous satisfaction.

3. **Helping with our membership database and our new** website.

The task: This entails working with the Trustee in charge of these areas to ensure our membership listing is kept up to date and that contact details are accurate. It also entails working with him to check that our new website is up to date and that messages are posted in the right place.

The skills: Accuracy, attention to detail and preferably a good understanding of databases and websites.

4. **Helping with Social Media postings.**

The task: Feeding our existing social media accounts with new stories on a regular basis. The news that goes on our website often forms the basis for suitable stories.

The skills: A good way with words- concise and punchy! An ability to spot an eye-catching story and to spread it using a variety of social media platforms.

If you think you could contribute to any of these roles or would like to discuss them further, please contact *Secretary@leo-computers.org.uk* in the first instance.

MEET YOUR TRUSTEES

The LEO Computers Society currently has 9 trustees who manage the work of the charity working with a number of volunteers, some of whom are committee members.

Here, the trustees introduce themselves and tell you about what work they do for the Society.

PETER BYFORD, Chairman

Although not very academic at school, I loved logic and enjoyed organising things. I left school aged 17 in 1961; applied for trainee programmer jobs and passed the LEO aptitude test. I had no real idea what a computer was – let alone a programmer – but it sounded intriguing. My work at the LEO III/I service bureau in Hartree House was enjoyable, though demanding very long hours. I left LEO in 1965 at the time of the takeover and then worked as a programming team leader, system analyst & data manager at various companies including 25 years at British Gas-Eastern.

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!

BERNARD BEHR, Treasurer

I graduated in Accounting and Economics from Wits University, Johannesburg. In 1965, I joined Leo Computer Bureaux in Johannesburg, a subsidiary of Rand Mines, as a programmer. Leo Fantl was MD, Bob Day, Branch Manager and John Godwin, Programming Manager.

Later I joined the embryo Mutual Fund, part of the team charged with implementing an accounting system on a Bureau-based IBM 360. I retrained at IBM and was thereafter "promoted" to Personal Assistant to the MD and left the industry not to return.

Subsequently, I embarked on a long personal journey in Business.

I joined the LCS Committee as Secretary in 2014 after volunteering my services at a time when assistance was needed. I created and edited the first three issues of the LEO Newsletter and have been Hon. Treasurer since 2016.

HILARY CAMINER, Secretary

I am probably the only Trustee with a totally non-technical background. My career was in teaching English in further and higher education, most recently with the OU. As the oldest child of David Caminer, a LEO pioneer, I have lived alongside the LEO story throughout my life. Wanting to help preserve and publicise the heritage of this amazing invention, I accepted an invitation to join the committee in 2016. My work for the Society includes acting as Hon Secretary, editing the anthology 'LEO Remembered' and our newsletter 'LEO Matters' and working with our partners at the Centre for Computing History in Cambridge on our joint lottery-funded project.

FRANK LAND , Historian

I joined Lyons as an accounts clerk in 1951 after graduating from the London School of Economics. A year later I was selected to join the then tiny LEO team as a trainee programmer on LEO I, with Derek Hemy and John Grover as my mentors and David Caminer head of programming and systems. New responsibilities rapidly followed and when in 1954 LEO Computers was founded I became a consultant – later chief consultant.

In 1968, somewhat disenchanted by the company's divorce from Lyons, I took up an opportunity to launch a new programme of research and teaching in IS at the LSE to re-join my alma mater (and wife Ailsa). I retired as Professor of Information Management in 1992, but persuaded by David Caminer, joined first the LEO Foundation and then the LEO Computers Society, remaining active as the Society's Historian and compiling LEOpedia. Working with the LEO Computers Society and the heritage project with CCH is, apart from family life, my chief hobby and activity.

JOHN DAINES

I left school in September 1961 for a job as a Leo operator - 2½ years in the II/5 bureau working for Bill Steele and nearly 4 years as commissioning operator in the Minerva Road factory with Tony Morgan. I had seen EDSAC in operation on a school visit in 1959. System 4 followed Leo: Commissioning in London, Winsford, Kidsgrove, 3 years on System 4 software in Kidsgrove followed by 30 years based in Manchester working with ICL's Local Government customers in various roles; ending as a senior consultant before redundancy in 2002.

I joined the committee in 2009, deal with memorabilia, liaise with the various repositories, do some oral history interviews, have some technical knowledge and a long memory.

BOB STEVENSON

After National Service with the RAF, I answered an ad by Leo Computers towards the end of 1959. Following aptitude tests, lunch in Whiteleys and an interview I was offered a job as operator on the Leo Bureau computer, II/5, at Hartree House. This proved to be fascinating and stimulating work. There was no real operating system and shift work meant that for 2/3rds of the time the Shift Leader was in sole command with no management supervision. I progressed from Shift Leader on II/5 to Shift Leader; Chief Op.; Ops. Manager, on the Leo III/1 Bureau machine.

I am probably one of the founder members of the LEO Computers Society. I set up and until recently maintained the Leo website .

JOHN PASCHOUD

I took a job as a Computer Operator with the Post Office Data Processing Service, at Charles House in Kensington, with four LEO326s processing telephone bills and NDPS bureau work - as a 'gap year' job before university. I started on my 18th birthday.

I decided I liked computing, moved to System4 ops, gained qualifications as I worked (eventually MSc with distinction and C.Eng). I successfully progressed through several interesting employers, jobs and emerging fields including Youth Training, Geographic Information, Libraries, and Internet Identity Management.

I've also been an elected Councillor and a School Governor for 22 years, so my role on the LEO committee often involves matters of education and governance.

VINCE BODSWORTH

I read Mathematics and Theoretical Physics at Cambridge University and attended lectures on Computer Theory given by Maurice Wilkes , the designer of EDSAC - the forerunner of LEO. I graduated in 1967 and joined the company ICT, which very quickly became ICL with the addition of English Electric Leo Marconi. I met, and worked with, many of the LEO pioneers who came into ICL and gained a respect for the ethos LEO engendered.

My entire working life was spent in many different aspects of IT and on retirement I decided that it would be good to help the LEO Computers Society tell the story of LEO. I now manage the website and the membership database.

NEVILLE LYONS

I served as an officer in the Royal Corps of Signals for 31 years and subsequently an executive with Trade Associations (national and European) for the electronics industry.

I had no direct connection with J Lyons & Co or LEO, but the family relationship between Sir Joseph Lyons and my grandfather as first cousins encouraged me to research the history of the Company and LEO. This, in turn, provided the substance of talks which I have been giving since 2008 mainly to retirement organisations. I joined LEO Computers Society in 2014.

The popularity of the talks and my enthusiasm for LEO history led to my offering myself in 2019 as publicity trustee for the LEO Computers Society.

The Society also has a wider committee and a large number of volunteers. We are very grateful for all the support and hard work that they contribute to the effective running of our projects.

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- Ideal for shopping, but also good for storing papers, craft materials etc.
- Excellent value at £5 – to include UK postage. Please ask for overseas postage costs.

Please contact *Secretary@leo-computers.org.uk* if you would like to buy one or more of these great bags. All proceeds go towards Society funds.

Appeal for information

Peter Byford asks:

There were a number of West Indians/Afro-Caribbean's working at LEO's Minerva Road factory in the late fifties and sixties.

Some of them were active members of the LEO and Lyons cricket teams. One of

them, Winston Jackson, played a few games for Middlesex 2nd X1.

None of them have ever made contact with the Society, does anyone know of them and how we might be able to contact them? Please contact Peter if you have any information on *Chairman@leo-computers.org.uk*

Maybe you played sport for a LEO team – if you did, please let us know as we would like to feature this aspect of life with LEO in a future edition of LEO Matters.

SOME FINAL REQUESTS TO OUR EVER-HELPFUL MEMBERS

1. **Do you have any LEO-related material on your PC which might be of use to our growing archive?**

    It could be that you have stored documents, diagrams, photos etc. from your time working with a LEO computer which we would love to see.

2. **Do you know of any photos or film of Lyons bakeries at work - particularly the Swiss Roll plant at Cadby Hall?**

3. **Have your contact details changed?** Please don't forget to update us.

    Please contact *Secretary@leo-computers.org.uk* if you have answers to any of these questions.