If any reader knows of any other reference please let Frank Land know at f.land@lse.ac.uk

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LEOPEDIA

LEO Computers Society's guide to references and holdings related to the story of LEO

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LEO HERITAGE CUMULATIVE LIST

BOOKS

Books about LEO

- Agar J., (2003), **The Government Machine. A Revolutionary History of the Computer**, MIT Press. Pages relating to LEO: pp. 266, 302--306, 314, 325, 421.
- Anon (1952) **The Layman's Guide to LEO**, Lyons.
  The guide was circulated to Lyons executives and senior management to help them understand how computers, and in particular LEO, worked. The typewritten document is in part based on Ernest Lenaerts Development of the LEO Computer – see below. The manuscript was donated to the LEO Computers Society by Philip Bird in November 2017
- Bird, P. (1994) **'LEO, the First Business Computer'**, Hasler Publishing.
  Peter Bird joined Lyons when, as he says, 'the pioneering years of computing were no more than folk history.' Nonetheless, through his 'talking with old-timers' and delving through the Lyons archives, he has made an important contribution to the LEO story. Of particular value are the appendices which, inter alia, give details of the instruction codes, speeds, capacities and deliveries of the different models.

- Caminer, D.T., Aris, J.B.B., Hermon, P.M.R. and Land, F.F. (eds.) (1996) **'User Driven Innovation: The world's first business computer'**, McGraw Hill, Maidenhead.
  A first-hand account written by thirteen of the early users who developed the disciplines of systems engineering and put LEO to work on economic, time-dependent business applications, starting in 1951. Included is an edited version of the seminal report of the two Lyons executives who, after a tour of the early computer activity in the United States in 1947, recommended that Lyons acquire a computer of their own. Also included is a Science Museum interview with John Simmons.

- Caminer, D.T., Aris, J.B.B., Hermon, P.M.R. and Land F.F. (eds.) (1998) **'LEO, the Incredible Story of the World's First Business Computer'** McGraw Hill, New York.
  The revised United States edition of User-Driven Innovation, a Chinese edition was published in 2000.

Extracts from Reviews

Professor Dick Nolan of the Harvard University Business School writes in his introduction to the book:
"This story has the best qualities of a Harvard Business School case study: it is an important event in the history of the business.
It is a study about extraordinary people ... As confident executives they look outside their company, in other countries, at universities to discover new ways of doing things and fresh ideas. In their bold actions, trust shows through as a foundation in implementing their vision. Young people are given free reign and do not disappoint. A resulting exciting, challenging 'can-do' culture is heard in the words of the people who were there."

Dr Terry Gourvish, Director Business History Unit, LSE, in LSE Business History Newssheet,

"This is a major contribution to the history of computing and computers in the UK. A full scale case study of LEO computers, written by members of the team who experienced all its trials and tribulations, it provides a fascinating insight into the development by J. Lyons & Co. of the first business computer in the UK."

Neil Fitzgerald, editor of CA magazine, in The Scotsman, Business section. .

"Can-do culture, empowerment, user-driven innovation, business process re-engineering, flat organisations, quality, short lines of communications and decision making. We are led to believe that these are radical, modern ideas. However, a book that has come into my hands shows that they were being successfully harnessed almost half a century ago, to create the most significant event ever in business management.
The editors ... tell the story of how they and others built and put to work the world's first business computer. This did not happen in California's Silicon Valley, but at Cadby Hall, the ... west London premises of Lyons.
An important facet was that they felt they should always take a strategic view of the whole function to be computerised and make recommendations for improvements before going to work."

Dr John Pinkerton, review in **ICL Technical Journal**

"Telling the story of how the foundations of data processing were laid from 1949 onwards has evidently been a labour of love.
This is a work of scholarship but eminently readable nevertheless. It will be seen as a major contribution to the history of business computing; it is strongly recommended for anyone already working in or studying to enter the field of IT."

Michael Braithwaite, Deloitte, Touche, European Journal of Information Systems.

"I commend this book to a wide audience. To the general reader it stands as a very well written and exciting account of technological innovation. To the business school student it presents a remarkable story of technological success that, as a commercial venture was flawed, perhaps by factors beyond the control of the players."

Professor George Mitchell, review published Journal of Operational Research Society..

"This fascinating book tells the life story of LEO. Rather over a third of the book is the historical record, carefully researched and engagingly written up by Caminer. The rest is largely personal memoirs of those involved in the early days, including accounts of several innovative applications. The whole is rounded off by an evaluation by Aris. The book's value is enhanced by the style of writing. Those who worked in LEO,

especially in its earlier days, including many of the book's authors, exercised an influence on the development of business computing in the UK quite disproportionate to their numbers.

I found this book a good read and one which exited several strands of thought. Although its main market will be among scholars and students of IT and business studies, it deserves a wide readership in the OR community."

John Perkins, National Computer Centre Newsletter,

"The book is a fascinating adventure story in which the dynamics of an extraordinary group of people made the seemingly impossible happen."

Professor John Ward in the Journal of Strategic Information Systems.

"The story of that first business computer: Leo - Lyons Electronic Office - is told in this book. Whilst it is history, reflection on what was achieved and not achieved and why still has many lessons of relevance to the successful use of IT today - we seem to be learning painfully and slowly!.

.... a review by John Aris of what of what he calls the 'LEO approach' - an integrated combination of technology innovation, application and consultancy designed to enable significant business improvements from computer use in a range of situation. Many of these applications would be called 'business process redesign' in the 1990s!

The wide range of contributors provide many different perspectives on what happened and views on why things evolved the way they did. It is a set of memoirs - often very personal ones - of a time when Britain could be said to have led the world in the application of this new technology.

... it is a book that we should all be grateful the authors took the time and trouble to get together and write. It is a story of extraordinary achievements, by a talented team..."

I. A. Lovelock in Management Accounting.

"This book is a first-hand account of how this astounding innovation came about. It is a flesh and blood, warts and all story related by the participants, brimming over with the same enthusiasm that enabled the unlikeliest of organisations to lead the way into the future that we are all familiar with today.

It concludes with different strands coming together to provide the essence of the LEO credo of comprehensive, integrated, secure, action stimulated implementations.

Professor T. Brady, Brighton University

"As well as being a fascinating piece of historical writing the book provides food for thought in the supposedly computer literate world of the 21st Century. Spectacular computer disasters such as the London Stock Exchange's Taurus system have left us with rather jaundiced perceptions about computer projects. Why were Lyons better at implementing computer systems?
One major factor was that before automating business processes the Lyons team ensured that they were well understood and ready for computerisation. Long before the prospect of computers came along, Lyons had established a systems research office with the brief to constantly search out how improvements might be made to the business by changing processes."

- Ferry, Georgina (2003) **'A Computer Called LEO'**, Fourth Estate, London.
  'LEO and its creators deserve their place in history not because of what it was, but because of what it did. For LEO was the first computer in the world to be harnessed to the task of running a business.
  A paperback edition was published in 2005, by Harper Perennial

- Caminer H., editor (2016) **'LEO remembered: by the people who worked on the world's first business computers'**, LEO Computers Society. Collection of reminiscences, testifying to a sense of collective endeavour among the LEO community.

- Lenaerts, E. (1948) **'Development of the LEO Computer: Brief Description of EDSAC'**.
  Peter Bird collected and had bound (September 1992) the photocopies of the handwritten description of EDSAC compiled by Ernest Lenaerts in October 1948, with contributions from David Caminer, Derek Hemy, Thomas Thompson and others. It formed the basis of a larger publication titled **The Layman's Guide to LEO** – see below. The volume was donated to the LEO Computers Society by Philip Bird, November 2017.

- Simmons, J.R.M. (1962) **'LEO and the Managers'**, Macdonald, London.
  The paperless office concept of the Lyons Comptroller, whose support was vital to the LEO project

Books that refer to LEO

- Ahmed, Haroon (2013) **'Cambridge Computing - The First 75 Years'**, TMI Publishers.
- Anon (2011) **'ICL Mainframe Computers'**, Books LLC.
  This 19 page pamphlet gives a brief description of a number of UK designed and manufactured computers including the LEO range, pages 18 and 19. All the texts are lifted from Wikipedia entries and include some errors made in these entries.
- Baker, Rob (2015) **'Beautiful Idiots and Brilliant Lunatics: A sideways look at twentieth century London'**, Amberley Publishing Limited. Chapter 22 includes the story of Lyons and its place in London, and notes its role in the development of LEO and business computing. See https://books.google.co.uk/books?id=yOwgCwAAQBAJ&pg=PT300&lpg=PT300&dq=How+Lyons+Produced+the+Worlds+First+Large+Business+Computer&source=bl&ots=8MWwgk_uLN&sig=ucgm-M47SKOlozeLgYGfI6TU_MA&hl=en&sa=X&ved=0ahUKEwjcmumWyK_MAhWFOyYKHSu9DHcQ6AEIYDAJ#v=onepage&q=How%20Lyons%20Produced%20the%20Worlds%20First%20Large%20Business%20Computer&f=false
- Bird, P. (2000) **'The First Food Empire: A History of J. Lyons and Company'**, Phillmore.
  Peter Birds account of the history of J. Lyons including a reference to the LEO initiative.
- Bruderer, H. (2015) **'Meilensteine der Rechentechnic (Milestones in Computer History)**', De Gruyter Oldenbourg, Berlin/Boston. This 820-page book written in German has a number of references to LEO throughout the book. The author is a Swiss academic.
- Campbell-Kelly, M. (1989) **'ICL A Business and Technical History'**, Clarendon Press, Oxford.
  The history of ICL is synonymous with the history of the British computer industry. ICL was formed by a series of mergers in response to the increasing market dominance of the large American corporations, particularly IBM. The struggles between these two giants and the inherent problems and implications of competing with US multi-nationals are examined in detail in Campbell Kelly's wide-ranging study. At the time of writing in the late 1980s, the author was given unrestricted access to ICL archives and his lucid account of the company, its set-backs and successes makes for a compelling and informative read. This book, which was Winner of the Wadsworth Prize for Business History (1989), will be of great interest to anyone involved in business or the computing industry.
- Carmichael, Hamish (ed.) (1996) **'An ICL anthology'**, Chapter 6, LEO, pp. 91-94, Laidlaw Hicks Publishers, Surbiton.
  Chapter 6 presents an anthology of quotations about LEO, mainly from LEO personnel.
- Ceruzzi, Paul E. (2003) **'A History of Modern Computing'** (2nd edition),
  MIT Press. Reports on the role played by Lyons and LEO in the development of business computing.
- Greenia, Mark (2003) **'The History of Computing: An Encyclopaedia of People and Machines that made Computer History',** Lexikon Services. A useful and comprehensive chronology of computer history including recognition of Lyons and LEO plus pictures and descriptions of the LEO initiatives.
  Note: a photo of LEO II/1 is wrongly labelled LEO 1, and the link to the LEO Computers Society website does not work. https://www.amazon.com/History-Computing-Encyclopedia-Machines-Computer/dp/0944601782
- Grindley, C.B.B., (1975), **Systematics**, McGraw-Hill, New York. Based on his experience working with LEO, Grindley sets out a 'language' for defining information systems.
- Hally, Mike (2003) **'Electronic Brains: stories from the dawn of the Computer age'**, Granta Publications, London.
  The book is based on 4 BBC radio programmes produced by Mike Hally. Despite its populist title, it is a very readable and informative account of some early computer ventures in the USA, UK, Soviet Union and Australia. Chapter 5 is an account of the LEO story.

- Hendry, John (1990) **'Innovating for Failure. Government Policy and the Early British Computer Industry'**, MIT Press, Cambridge, MA. xx, 240 pp. Hendry analyses the failure of the British Computer Industry in spite of the efforts of the NRDC to rationalise the industry. https://www.amazon.co.uk/Innovating-Failure-Government-Computer-Computing/dp/0262081873
- Hénin, S., (2014) **Come le violette a primavera**, AICA, pp. 163, 174-5, 19
- Henin, S., (2017) **Il racconto del computer** , Edizioni Manna.
- Hicks, Marie (2017) **'Programmed Inequality: How Britain Discarded Women Technologists and Lost its Edge in Computing'**, MIT Press. Marie Hicks, an American Academic, has produced a well-researched and in many ways fascinating account of the British Computer Industry from its birth at the beginning of World War 2 code-breaking at Bletchley Park to the demise of ICL in the mid-1970s. As such it includes many references to LEO including reports of interviews with LEO employees. However, the focus is on British Government computing, and in particular on the making of staffing policy in the Civil Service. Whilst the account is often interesting and provides an insight into the social history of the Civil Service as it enters the Information Age its basic hypothesis embodied in the title of the book is at best dubious. mariehicks.net
- **IEEE History Foundation.** Milestones By Year Dedicated And Region comprises a variety of relevant material related to the interests of the IEEE. It includes references to LEO and includes an oral history of LEO programmer Betty Cooper, http://ethw.org/Oral-History:Betty_Cooper
- Jones, Capers (2014) **'The Technical and Social History of Software Engineering'**, Addison-Wesley. Capers Jones's book is a monumental history of computers and computing with a prime focus on 'software engineering'. Jones has an introductory chapter which deals with the pre-history from the beginning of civilisation to 1930, then chapters dealing with each decade up to 2013. His chapter on the 1950s includes the LEO story, brief (pages 85, 86, in a 452 page book), but giving some weight to the place of LEO in computing history.
- Kavanagh, J., (2007) **'BCS – Celebrating 50 years'**, British Computer Society. 82 pages including a chapter titled 'Birth of an Industry and the BCS', which features Maurice Wilkes, photo of LEO I and potted history of LEO.
- Lavington, Simon H. (1980) **'Early British Computers: The Story of Vintage Computers and The People Who Built Them'**, Manchester University Press, http://ed-thelen.org/comp-hist/EarlyBritish.html#TOC Chapter 13, pages 68-77, gives a brief history of LEO and English Electric, including a timeline.
- Lavington, Simon, (2011), **Moving Targets: Elliott-Automation and the Dawn of the Computer Age 1947 – 67,** Computer History, Springer. Although the book is primarily a history of Elliott-Automation it has a number of references to Lyons and LEO.
- Lavington, Simon (ed.) (2012) **'Alan Turing and his Contemporaries'**, British Computer Society. 111 pages, summarises the background to all the early British stored-program projects from 1945 – 1951.
- Lean, T, (2016), **Electronic Dreams: How 1980s Britain learned to love the computer,** Bloomsberry/Sigma. The book includes references to LEO and its early success. See also Review by Jonathan Margolis in Financial Times, below.
- Marshall, Stephen (2015) **'The Story of the Computer: A Technical and Business History'**, Kindle edition available. 592 pages the story of computing up to, but not including, the advent of smart phones. The LEO project is noted in Chapter 6, pages 198-189 and further mentions are made elsewhere such as the donation to EDSAC (Chapter 5, page 185). Reviewed by Dik Leatherdale in Resurrection Issue Number 79 Autumn 2017.
- Morelli, M, (2001),Dalle calcolatrici ai computer degli anni Cinquanta, Franco Angeli, pp. 341-44
- O'Regan, G. (2012) **'A Brief History of Computing'**, 2nd ed, Springer, London. Chapter 3, 'Early Computers', provides a brief account of EDSAC and LEO.

- O'Regan, Gerard (2015), **'Pillars of Computing: A Compendium of Select, Pivotal Technology Firms'**, Springer. Chapter 21, pages 135-138, provides an account of LEO Computers Limited.
- O'Regan, Gerard (2016) **'Introduction to the History of Computing: A Computing History Primer'**, Springer. For undergraduate students, Chapter 5.3, page 75, describes LEO I.
- Roebuck, K. (2011) **'Managed Print Services: High-impact Technology - What You Need to Know'**, Tebbo. The book is a type of encyclopaedia including a wide range of technology topics each supplemented by a rich set of references. A short, well sourced, chapter on LEO, page 50-56, is included.
- Rose, Michael (1969) **'Computers, Managers and Society'**, Pelican.
  The author notes LEO amongst the pioneers and provides a brief account of the LEO story.
- Simmons, J.R.M. (1970) **'Management of change. The role of** Information', Gee & Co, London.
- Stern, Nancy B. (1981) **'From ENIAC to UNIVAC: Appraisal of the Eckert-Mauchly Computers Hardcover'**, Digital Press, March 16, 1981. Pages 148 -151 report on the precedence of the LEO initiative in the development of business computing.
- Tatnall, Arthur (ed.) (2012) **'Reflections on the History of Computing: Preserving Memories and Sharing Stories'**, in 'Series: IFIP Advances in Information and Communications Technology', Vol. 387, Springer, November 2012. Chapter 2, Frank Land, Remembering LEO, pp. 22-42.
- Turing, Dermot, (2018), **The Story of Computing**, Arcturus Publishing , London, includes a section on the Lyons/LEO place in the story of computing, and includes photo of LEO, Chapter 6, pages 106 to 110. Sir Dermot Turing is a nephew of Alan Turing, and 12th Baronet Turing. The book provides a comprehensive and readable account of the story of computing from abacus to a glimpse of how the story might develop in the future.
- Various authors (1956) **'The Electronic Office'**, a collection of articles assembled by the Liverpool and M**er**seyside Branch of the Office Management Association following their conference in April. Includes articles by David Caminer and Oliver Standingford. Bound copy held by Hilary Caminer.

ARTICLES, REVIEWS and other PAPERS

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- Anderson, D., Delve, J. (2004) **Pioneers of Payroll on computers**: LEO, the Army, the Navy Dockyards and De Havilland, IEEE Annals of the History of Computing, ISSN: 1058-6180.
- Anon (1947-1954) **LEO Chronicle**, Lyons and Office Management Association. Papers of John Simmons, Reference Number: 363/S4/11, Warwick University, Modern Records Centre. The Chronicle is a diary of events and activities relating to the development and operation of LEO computing – an invaluable source. http://contentdm.warwick.ac.uk/cdm/ref/collection/leo/id/242
- Anon (1949) '**A non-technical description of E.D.S.A.C'**. How the Cambridge Electronic Calculator works, J. Lyons & Co., June 1949.
  http://www.leo-computers.org.uk/images/How%20EDSAC%20Works.pdf
- Anon (1952) **'The Laymans Guide to LEO'**, J. Lyons & Co.
  Intended for the Lyons' Management only a small number were printed. The original version was about 75 pages, though later versions were much longer. Copies are held in the John Simmons Archive at Warwick University Modern Records Centre Showcase: Pioneers: Innovators in Science and Technology, and can be downloaded from:
  http://contentdm.warwick.ac.uk/cdm/ref/collection/leo/id/263
  http://www2.warwick.ac.uk/services/library/mrc/explorefurther/images/pioneers/ files as item MSS.363/S4/12 and at the University of Manchester John Rylands Library,

http://archives.li.man.ac.uk/ead/html/gb133nahc-leo-p1.shtml, filed as item C130. Appendix 13 in Peter Bird's book LEO: The First Business Computer is extracted from the guide.

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- Anon (1954) **'Electronic Abacus'**, The Economist, pp. 789-791, 13th March, probably authored by Mary Goldring.
- Anon (1955) Leaflet on "**Computer Training Courses**", by LEO Computers.
- Anon (1957) **It's Quicker by Computer: 'LEO' Works our Rail Distances**, The Times, June 24.
- Anon (1957) **Political & Economic Planning, 'The LEO Computer: a case study in the use of an electronic computer in routine clerical work',** Three Case Studies in Automation, July, probably authored by Leonard Tivey.
- Anon (1960) **'Getting to grips with computers'**, The Times Newspaper, reprinted in The Times Newspaper, August 4th 2000.
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- Anon, (1965-66), **The Post Office enters the Computer Age,** Post Office Telecomms Journal, Vol. 16.17, reporting on the purchase of 5 computers valued at more than £2 million.
- Anon (1965) **Daily Mail Obituary for LEO I**, 9th January. Plus other items about LEO initiatives in Eastern Europe.
- Anon (1967), September LyonsMail short note and photos of Lyons Managing Director Samuel Salmon viewing restart of LEO III/7 following the catastrophic fire at the Lyons computer installation. More information on the incident can be found in Peter Bird's book LEO: The First Business Computer page 164 to 166.
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- Anon, (circa 1958), **LEO II at Stewarts and Lloyds**, in http://www.corby.gov.uk/sites/default/files/Electronic%20Computers.pdf
- Anon, **LEO Computers in Australia**, http://collections.museumvictoria.com.au/articles/12682
- Anon (2017), **Quotation from a Director of J. Lyons**, "I attended a Board meeting when for 1 hour and 59 minutes there was a heated debate about the price of a cup of tea in Teashops.
'A rise of a penny or half a penny!'
At the end of the row John Simmons, of whom everyone was in awe, asked for a further 2 million pounds for work on Leo. Passed without debate."

If any reader knows of any other reference please let Frank Land know at f.land@lse.ac.uk

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- Wilkes, M.V. (2001) **'John Pinkerton and Lyons Electronic Office'**, IET Computing and Control Engineering Journal, Vol. 12, Issue 3, pp. 130-144.
- Wilkes, M.V. (2001) **'John Pinkerton and Lyons Electronic Office'**, IET Engineering and Education Journal, Vol. 10, Issue 5, pp. 183-188.
- Wilkes, M.V. (2000) **'Business Innovation: Introduction of new methods into business operations'** IEE Inaugural Pinkerton Lecture, unpublished, copy of text with F. Land.
- Williams, C. (2001) **How a chain of tea shops kickstarted the computer age**, Daily Telegraph, **http://www.telegraph.co.uk/technology/news/8879727/How-a-chain-of-tea-shops-kickstarted-the-computer-age.html**
- Williams, C. (2015) **Of Bunkers, Bytes, and Cakes** http://softbox.co.uk/pub/Of_Bunkers,_Bytes_and_Cakes_Web.pdf An abridged version is printed in March 2014 issue of Cyber Talk Magazine, Issue 4.
- Williams, J.E. (1967) **The Brains Behind The Buttons**, Coventry Standard, p. 21, January 5th. The article refers to LEO/28 sold to Coventry Corporation.
- Williams, R. (1976) **Early Computers in Europe**, AFIPS National Computer Conference and Exposition, June, Proceedings, pp. 21-29, New York. http://dl.acm.org/citation.cfm?doid=1499799.1499804 and to download paper https://www.computer.org/csdl/proceedings/afips/1976/5084/00/50840021.pdf The paper includes a long section on the Lyons/LEO story. From the abstract: "the paper also includes a detailed description of the birth and foundation of the most successful first British commercial computer company-Leo Computers Limited, and this gives an insight into the thinking which lay behind British early computer development".
- Woods. M.J. (2002) **History of the Kidsgrove Works**, **http://www.members.optusnet.com.au/jaxbar/kidsgroveworkspt1.pdf** A detailed account of the Kidsgrove works, including its role with English Electric LEO Marconi (EELM) and the part Kidsgrove played in the evolution of the UK computer industry.
- **Yost, J.,** (2019), Director of Charles Babbage Institute, University of Minnesota Letter of Support for LEO Computers Society bid to become a charitable institution. Copy available from Frank Land and Dropbox. https://www.dropbox.com/s/q3cjqblu388037a/Charles%20Babbage%20Instutute%20Support%20letter.docx?dl=0

ARCHIVES –LEO DOCUMENTS AND ARTEFACTS

The following web links provide search facilities covering most of the UK's and Ireland's official archives: http://discovery.nationalarchives.gov.uk/ and http://copac.jisc.ac.uk/

LEO Computers Society. http://www.leo-computers.org.uk/ The Society has a membership of over 700 people mainly ex- employees of LEO computers; J. Lyons & Co.; ex-employees of LEO clients; plus others interested in the story of LEO. Chair of the Society is Peter Byford. The Society publishes a regular Newsletter – editor Bernard Behr – describing aspects of the LEO story. One of its chief objectives is the preservation and publication of the LEO heritage. As such it has engaged in a partnership with the Cambridge Centre for Computer History in a project funded by the Heritage Lottery Fund to further that objective. The Society and its members hold significant memorabilia in the form of :

- Material collected from deceased and live members of the Society, donated to the Society and loaned for archiving and digitising to the Cambridge Centre for Computing History. The annex to LEOPEDIA list the material held by CCH as at October 2018
- A Dropbox archive in the name of Frank Land which holds the Oral Histories of members of the Society who participated in the Society's Oral History Project – coordinator Mike Tyzack – and other texts submitted by members.
- Individual computer records collected by members but unclassified and un-indexed
- Other memorabilia saved or collected by individuals and held in various forms and not classified or indexed

Centre for Computing History Cambridge (CCH): www.ComputingHistory.org.uk **Contact: Lisa McGerty** at lisa@computinghistory.org.uk
The CCH and LEO Computers Society reached a Partnership Agreement in the summer of 2018 for the storage, and archiving of LEO memorabilia. At the same time the Partnership submitted a bid for funds from the Heritage Lottery Fund for support of further work in archiving and providing education and presentations noting the work of the LEO pioneers. In September 2018 the Fund made available substantial funding for an initial one year period. Earlier **t**he Centre held an exhibition featuring the LEO story in November 2017, attended by a number of members of the LEO Computers Society some of whom gave a LEO heritage project presentation. A short description of the Lyons and the LEO project, including photos can be found at: http://www.computinghistory.org.uk/det/6162/LEO-I-computer-became-operational/. A collection of sounds made by LEO III has been borrowed by Jason Fitzpatrick from the LEO Computers website for display at the Museum on You Tube can be heard at https://youtu.be/6vfa_RC_y1M The LEO Computers Society has transferred a number of holdings to the CCH for secure keeping on a loan basis. These include files retrieved from Peter Bird, David Caminer and Ray Henessey. A ful list transferred as at October 2018 is provided in the annex to LEOPEDIA. See also LEO Computers Archive finds New Home

In March 2018 the following items were digitised and are available at
http://www.computinghistory.org.uk/leotemp/

LEO II test program - scanned and available online as individual pages
Preparing for a computer - scanned, single pdf available online
Intro to programming - scanned and available online as individual pages
Inland Revenue - scanned and available online as individual pages
EDSAC – micro-programming - scanned and available online as individual pages
EDSAC - scanned and available online as individual pages
Notes on use of LEO - scanned and available online as individual pages

UK (and online) Archives

- **British Library**, holds various LEO related items in its archives. Including oral Histories of Mary Coombs and Frank Land. BL also maintains an archive of selected patent application including LEO patents lodged by John Pinkerton. See BL Explore Archives and Manuscripts catalogue. The catalogue number is **Add MS 89294** http://searcharchives.bl.uk/IAMS_VU2:IAMS032-003391654

- **Archives IT** – an organisation devoted to the collection, archiving and dissemination of information relating to the history of UK IT. The archive includes the Oral Histories of many UK's eminent IT personal who made that history including from LEO Ninian Eadie and Frank Land. The Director of Archive IT is Paul D Janner, Director@archivesit.org.uk. See his article Capture the Past to Inspire the Future, page 66, *ITNOW,* Winter 2017. Website www.archivesit.org.uk

- **National Archive for the History of Computing**, Manchester, LEO Computers, https://www.jiscmail.ac.uk/cgi-bin/webadmin?A2=history-of-computing-uk;ca4a4c3.0012 provides a listing of documents held by the library. http://archives.li.man.ac.uk/ead/html/gb133nahc-leo-p1.shtml
  As part of the library's special collections, the Archive is located in the main building of John Rylands University Library of Manchester, http://rylibweb.man.ac.uk/ Burlington Street (building 18 in the campus map. *Note that none of the collections have been digitised, but can be viewed by arrangement with the Librarian*

- **The Computer Conservation Society** has collected technical and other background Information about all early UK computers including LEO. It holds monthly meetings at the British Computer Society Headquarters in London at which various aspects of its activities are presented. See http://www.ourcomputerheritage.org/CCSprop6.pdf and http://www.ourcomputerheritage.org/ A website is devoted to the UK Computer Heritage and includes information about the origins of LEO and summaries of the LEO range. http://www.ourcomputerheritage.org/maincomp.htm
  The LEO record is incomplete and further technical information would be welcomed by the CCS. The CCS also maintains an index of documents relating to LEO including a complete listing of the **Pinkerton** papers held at the Science Museum http://sw.ccs.bcs.org/iclarch/arch01.html and 65 technical drawings including two patent applications http://sw.ccs.bcs.org/iclarch/arch06.html

- **The Computer History Society** has established an archive search facility of computing history websites. The link to the search facility is http://www.ithistory.org/search/site/ Searching LEO brings up http://www.ithistory.org/search/site/Leo with many LEO entries.

- **University of Warwick**, Modern Records Centre, John Simmons Papers (1924-1994), Ref: GB 152 GB 152 MSS.363, https://archiveshub.jisc.ac.uk/search/archives/80e05c8d-6acf-3e84-8999-1a9a8321cad5. See John Simmons Archive at Warwick University Modern Records Centre Showcase: Pioneers: Innovators in Science and Technology http://www2.warwick.ac.uk/services/library/mrc/explorefurther/images/pioneers/ for a number of items on LEO, now digitised, see www.warwick.ac.uk/services/library/mrc/explorefurther/digital/leo Boxes of manuscripts from David Caminer and John Aris are catalogued at http://mrc-catalogue.warwick.ac.uk/records/ARI/2

- **The Jim Austin Computer Collection** is a preservation of over 500 machines from small micros to mainframes and super computers. Some of the items can be seen on the web site http://www.computermuseum.org.uk/ . The Collection acquired some LEO III items in July 2012. Visitors are welcome on request.

- **The Shady Old Lady's Guide to London** **http://www.shadyoldlady.com/location.php?loc=617** notes the site of the First Business Computer at Cadby Hall with a short piece about the origins of LEO

- **Internet Scripophily Museum of Computing (ISMOC)**, a virtual museum created by Franky Leeuwerck on computing history represented by bond and share certificates. In 2017 J. Lyons and LEO Computers were added to the website with a chronology of the LEO story. See Internet Scripophily Museum of Computing

- **Neville Lyons** – descendent of the original Joe Lyons gave a series of public lectures on the History of the Lyons Company and on LEO Computers. Information about the 8th June 2016 lecture can be found at https://www.eventbrite.co.uk/e/the-joe-lyons-story-food-for-thought-tickets-24424562524# and for the 22nd June 2016 lecture at https://www.eventbrite.co.uk/e/the-story-of-leo-the-worlds-very-first-business-computer-tickets-24424811268#

- **Institute of Administrative Management (IAM)**, started life in 1915 as Office Machinery User's Association. John Simmons acted as chair and president for many years and some of its members including Wills were early LEO users. Its journal includes two articles on the history of IAM including many references to John Simmons and the Lyons/LEO story. See Gibson in previous section.
- **London Remembers** – aiming to capture all memorials in London. It includes the LEO plaque laying ceremony near Cadby Hall including links to the video and other material about J. Lyons & Co. See https://www.londonremembers.com/memorials/leo-world-s-first-business-computer
- **Dropbox:** LEO Oral Histories, oral history guidelines, reminiscences and memoirs are archived in Frank Land's Dropbox Account. They can be downloaded by a limited set of LEO Computer Society Members at https://www.dropbox.com/home/LEO%20Oral%20History%20project The Dropbox URL is referenced in summary Oral Histories and memoirs below. Anybody wishing to download items should apply to Mike Tyzack or Frank Land
- **Institution of Engineering and Technology (IET**). Established annual Pinkerton Lecture at the behest of LEO Computers Society to honour the achievements of John Pinkerton. The lecture series commenced in 2000. Until 2011 the lectures were held at Faraday House, London. Since that date they have been given in India by the Indian branch of the IET in Bangalore. The IET write about the lectures at http://conferences.theiet.org/pinkerton/history/index.cfm A full listing of the lectures 2000 to 2911, plus links to the lectures can be found at https://conferences.theiet.org/pinkerton/previous/index.cfm

  - *IET Pinkerton Lectures, Faraday House London*

    2000 **Inaugural John Pinkerton Lecture** Sir Maurice Wilkes AT&T Research Laboratories

    2001 **LEO and the Computer Revolution** David Caminer OBE

    2002 **Seizing the Moment: The Far Reaching Effects of Broadband on Economy and Society** David Cleevely Analysis Group

    2004 **Intellectual Property, Entrepreneurs and Company successes** Hermann Hauser Director, Amadeus Capital Partners Ltd IET.tv footage

    2005 **ICT Use in Rural India: Innovations Bridge the Digital Chasm** Professor Subhas Bhatnagar Indian Institute of Management, Ahmedabad IET.tv footage

    2006 **e-Science and Cyberinfrastructure** Professor Tony Hey VP Scientific Computing, Microsoft, USA IET.tv footage

    2007 **Invention to Phenomenon (Sensation?)** Sir Tim Berners-Lee Director of the World Wide Web Consortium

    2008 **Web 2.0 (Social Media to Inspire Change)** Alex Balfour IET.tv footage

    2009 **IT: Is it on the money?** John Carey, Former Head of Business, Strategy & IT and interim CTO, Lloyds TSB IET.tv footage

    2010 **The relentless march of the microchip** Steve Furber IET.tv footage

    2011 **Internet for all - is the real barrier to reaching this vision: demand, awareness, usability or access technology?** Dr Mike Short IET.tv footage

  - *IET Pinkerton Lectures Bangalore, India*

    2012 **Connecting Computers with the human brain** Prof.Kevin Warwick (University of Reading) http://conferences.theiet.org/pinkerton/

    2013 **Can India create a global powerhouse?** Sir Robin Saxby, Ex Founding CEO and Chairman ARM Holdings plc

    https://enathisky.org/techie/techie-magazine-2010/79-news/1794-report-on-iet-pinkerton-lecture

    2014 **Internet of Things** Jim Mornish, Founder and Chief Research Officer, Machina Research https://www.facebook.com/media/set/?set=a.967205353308482.1073741831.586954168000271&type=3

2015 'Re-imagining society through the Internet of Everything'. Dr Robert Pepper, Vice President - Global Technology Policy, Cisco http://events.theiet.in/Pinkerton2015/

- **Intriguing History Website** cites "the very brave and innovative decision to promote the development and use of commercial computers" taken by the Board of J. Lyons & Co. in 1947. See http://www.intriguing-history.com/leo-computer-jlyons-co/
- **Wikiwand Website** provides a brief history of LEO including bibliography and links. See http://www.wikiwand.com/en/LEO_(computer)
- **Marconi** maintain a Marconi History website which includes a section devoted to LEO Computers and is regularly updated with news from the LEO Computers Society. Access is restricted to password holders including Frank Land, marconiincomputersandautomation
- **Andrew Wylie** – Mister Transistor – collects and records information about early transistor computers, including LEO III – see http://www.wylie.org.uk/technology/computer/LEO3/LEO3.htm
- **London Metropolitan Archive, (LMA),** holds material relating to J. Lyons and Company archived under GB 0074 ACC/3527 See http://search.lma.gov.uk/LMA_DOC/ACC_3527.PDF Note: The material, including references to the LEO initiative are held in boxes in their original format (not digitzed). Selected material will be made available to searchers and can be photographed provided it is required for genuine research and not commercial reasons. LMA charges £5 per document copied. Neville Lyons neville.lyons@btinternet.com, (friend of the LEO Computers Society) has photographic copies of much of the material related to Lyons. LMA hold the copyright for the archive. Catalogue numbers for LEO related materials copied by Neville Lyons are:

  ACC/3527/026
  Cadby Hall Visitors Book, Princess Elizabeth signature.

  ACC/3527/311
  Lyons Office Journals covering profiles of TR Thompson, EH Lenaerts and Visit of Princess Elizabeth to Cadby Hall.

  ACC/3527/439
  Chairmen's Statements extracts mentioning LEO 1954 and 1965

  ACC/3527/246
  Lyons Mail 1992 extract re LEO.

- The **I love ICL Website** http://www.vintage-icl-computers.com/icl3a holds a collection of documents including LEO III Intercode and CLEO training manuals. These include the following: LEO III Paperwork at:

  http://www.vintage-icl-computers.com/icl2n
  LEO 326 11 Mag Tape boards at:
  http://www.vintage-icl-computers.com/icl44fc
  LEO III 3 Boards at:
  http://www.vintage-icl-computers.com/icl41
  LEO III 1 Tape , 110 LEO II/III Tapes and 1 Tape front at:
  http://www.vintage-icl-computers.com/icl42
  LEO III Panel at:
  http://www.vintage-icl-computers.com/icl42a
  LEO II Machine Plaque at:
  http://www.vintage-icl-computers.com/icl42b
  The site is maintained by Pete Wooledge a member of the LEO Computers Society, tabbs-firefly@outlook.com.
  Picture of KDF9 at Hartree House and 1947 book by Hartree can be found at www.vintage-icl-computers.com/icl2acs

- **LEO II at Stewart and Lloyds, Corby Heritage Centre:** Exhibition of LEO memorabilia and the story of the first LEO delivered to a customer held at Corby in July/August 2015. Exhibition entitled Corby &

Electronic Brain http://www.northantstelegraph.co.uk/news/top-stories/discover-corby-s-computing-heritage-with-new-exhibition-1-6866793

- **University of Stafford** April 14th 2016, Inaugural Lecture: Fifty Glorious Years Staffordshire's Role in the Development of Computing. The Lecture, by Professor Alan Eardley, includes references to English Electric, LEO, Kidsgrove. Photos of LEO and extracts from an interview of Frank Land by Alan Eardley.
- **Vintage ICL Computers:** includes photographs of large range of computers which made up the ICL group, including some photos of LEO items. See http://www.vintage-icl-computers.com/icl42 and http://www.vintage-icl-computers.com/icl42a. For further information contact Peter Wooledge tabbs-firefly@outlook.com and http://www.vintage-icl-computers.com

International Archives

- **Charles Babbage Institute and University of Minnesota Libraries Digital Conservatory**, provides links to any LEO material held in the Library including the Pinkerton Oral History. See http://conservancy.umn.edu/handle/11299/59493/browse?type=subject&value=LEO+(Computer)
- **The Museum of Communication,** Berlin unites past and present of communication in its permanent exhibition: therefore it illustrates the origins, the development, and the future perspectives of the information society. Appealing rotating exhibitions cast light on different aspects of communication. The permanent exhibition features a cabinet that shows the history of digitalization. Within this cabinet information about and pictures of the early LEO-Computers are presented. https://www.google.co.uk/search?rls=com.microsoft:en-GB:IE-Address&dcr=0&tbm=isch&q=%EF%82%A7%09The+Museum+of+Communication,+Berlin+LEO+Computers&chips=q:the+museum+of+communication+berl
- **Museum Victoria, Melbourne, Australia**. Purchased a Microprogram Module from a standard LEO III in 2013. The item is not on display but shown on its website together with a brief account of the LEO story written by Barbara Ainsworth. See http://collections.museumvictoria.com.au/articles/12682 The curator is (2018) Nicholas Crotty: ncrotty@museum.vic.gov.au
- **Heinz Nixdorf Museum (HNF)**, Padeborg Germany. Claims to be the largest Computer Museum in the world. But currently its only LEO holding is the Caminer *et al* LEO book in the Museum Library. Its Director, Dr Jochen Viehoff is keen to establish a LEO presence to show the LEO role in the history of computing. http://www.hnf.de/en/home.html
- **Computer History Museum**, Silicon Valley. http://www.computerhistory.org/revolution/
  The Museum holds and displays a number of LEO II relics including part of LEO II/3 the Corby Stewarts & Loyds Machine, and various LEO books and documents. Its record of holdings with photos is well organised and include the oral history of LEO veteran Chris Date (see Oral Histories below) and can be found on http://www.computerhistory.org/revolution/early-computer-companies/5/110/468 http://www.computerhistory.org/search/?q=LEO+Computers&site=chm_collection&client=chm_collection&output=xml_no_dtd&submit.x=2&submit.y=2 The Museums senior curator, Dag Spicer, is a member of the LEO Computers Society and its American Correspondent. The Museum also holds a marketing film made for LEO and donated to the Museum by John Pinkerton. Museum Information about the film can be found at http://www.computerhistory.org/collections/catalog/102705993 and http://www.computerhistory.org/revolution/early-computer-companies/5/110/2260 More information about the LEO II/3 at Corby including Newspaper articles can be found at - http://www.computerhistory.org/collections/catalog/102721101
- **University of Melboune Archive**: holds collection of Shell Oil Australia Archive, including material relating to the purchase and use of LEO III in Australia
- **Computer History Archives Project:** Director Mark Greenia, includes video Early Vacuum Tube Computers with a section on the LEO at around time index 7:34. and 13.09. Can be viewed at https://www.youtube.com/watch?v=WnNm_uJYWhA

Private Holdings

Many individuals, dead and alive; members of the LEO Computers Society or ex LEO employees, have private collections of LEO artifacts, documents and photographs, some of which are of historical importance. They include:

Alan King private archive
Peter Bird private archive, indexed and boxed and held at Cambridge Centre for Computer History.
David Caminer private archive, collected by Ray Hennessy and Hilary Caminer, part indexed and boxed.
John Aris private archive, collected by Ray Hennessy
Colin Tully private archive
Frank Land private archive, held by Elisbetta Mori.
Ernest Lenaerts 100 notebooks, quarto, compiled in manuscript, dating from 1949 to the early 1950s. The notebooks have been donated to the LEO Computers Society by Paul and David Lenaerts, Ernest's sons, and have been scanned into digital format by Bill Purvis, a member of the Computer Conservation s
They can be viewed at http://www.billp.org/LEO"
Wally Dutton Wally's daughter Andrea has donated her father's collection of LEO memorabilia including published papers dating back to 1954, newspqper articles and photographs

There are many other private hoards and the LEO Computers Society would welcome information about such holdings.

Museums

- A listing of which UK museums hold LEO Artefacts can be found at https://docs.google.com/viewer?a=v&q=cache:PDji3gRefxAJ:www.ourcomputerheritage.org/where%2520to%2520see%2520bits%2520rev.pdf+National+Museum+of+Computing,+Bletchley+LEO&hl=en&gl=uk&pid=bl&srcid=ADGEEShQHZUJK9fLlszQDnyUPVCJHyggZYpZb17rxGSn0sTpHzT-N67c2U8mKwcbndQJCYwUFqjwsZiadPNLwnm9aP2qsDnH8Dyp-JNgYByD7TCatAti0ny37VO2xsBmiE97dQEWtB1N&sig=AHIEtbRt65LTg4sDLd2BvqImwO9oAxlUNA –
- **Birmingham Museum** J. Lyons donated some LEO I items to the Museum in 1965. Documentation relating to the donation is held by Peter Byford of the LEO Computers Society, and photographs of LEO I hardware items are held by Chris Burton of the Computer Conservation Society. The items themselves are currently (October 2018) not available for viewing whilst a major refurbishment of the Museum is taking place..
- **Science Museum, London.** The Museum opened a new Gallery **The Information Age,** which features amongst other exhibits tracing the evolution of the information age, a special section devoted to LEO, including recordings of a teashop manageress reflecting on the changes the Teashop Job (L3) made to her life. The new Gallery is sponsored by a number of members of the IT industry and organized and managed by Dr Tilly Blyth of the Science Museum. LEO items held are displayed at https://collection.sciencemuseum.org.uk/search?q=Library%20LEO%20items
- **The National Museum of Computer History, (TNMOC), Bletchley.** LEO hardware items at TNMOC are listed at Hardware May 2010.pdf (3MB) and flowcharts of LEO I microinstructions at http://leo.settle.dtdns.net/LeoCode/MicroProgs.htm Information about LEO related items and activities listed at V http://www.tnmoc.org/search/node/. Trustee of Museum and Secretary of Computer Conservation Society is Kevin Murrell, kevin.murrell@tnmoc.org
- **National Museums Scotland, Edinburgh**. The Museum has LEOIII/33 (Phoenix Insurance), as well as three LEO III circuit boards, one of which is on display, and three circuit boards from from LEO IIs. The Senior Curator of Modern Science and Computing is Dr Tacye Phillipson: t.phillipson@nms.ac.uk Website: http://www.nms.ac.uk/
- **Museum of London, London.** The Museum has parts of LEO III/45 (Wedd, Durlacher, Morduant & Co.) including the console on display http://www.museumoflondon.org.uk/Collections-Research/Collections-online/object.aspx?objectID=object-49407&start=1&rows=1 Website: http://www.museumoflondon.org.uk/ Curator: Vyki Sparkes vsparkes@museumoflondon.org.uk
- **The Staffordshire University Computing Futures Museum** LEO Page lists LEO III sales. http://www.leo-computers.org.uk/leo-3s.html

OBITUARIES and BIOGRAPHIES

John Aris – 1934 - 2010 Educated at Eton and Oxford, with a degree and life-long interests in the classics, joined LEO as a programmer in 1958. A career in LEO and its successor companies, including Chief Business Systems Engineer for ICL in 1968 was followed by heading the computer department of the Imperial Group, then becoming director of the NCC. He retained his interest in LEO up to the end of his life becoming a prominent and active member of the LEO Foundation and the LEO Computers Society.
http://www.guardian.co.uk/technology/2010/aug/26/john-aris-obituary
http://www.vukutu.com/blog/2010/08/a-computer-pioneer/
http://www.cs.man.ac.uk/CCS/res/res52.htm#i

Antony (Tony) Bernard Barnes – 1926-2000. Tony Barnes joined Lyons as a Management Trainee after graduating in 1947 working in the Statistical Office. He transferred to the LEO programming team in November 1950 where his talents were quickly recognised. In 1955 he accompanied Thomas Thompson to the USA on a six-week tour, visiting several computer manufacturers and users. In January 1956 he became the Administrative Manager of the Design and Development Section of Leo Computers Limited and in June1959 the Production Director, reporting directly to Anthony Salmon, the main Lyons Board Director responsible for the whole LEO project. He left Leo Computers Limited shortly after the merger with English Electric.

Maurice Blackburn – died 2016, LEO Engineer. See also reminiscences of Anthony Robin Davies below. Tony Morgan writes "Maurice was very interesting person, a real gentleman with a small moustache. He had originally been a pilot with British South American Airways before it merged with British Overseas Airways. He was in Development at Minerva Road and his main claim to fame is in designing the Standard Interface Assembler for LEO III which connected industry compatible System 4 tape decks and also System 4 printers. This was particularly important for Post Office /British Telecom.. It had a unique type of logic element which made it difficult to understand and on which to diagnose faults. When we had problems in 1965 with what I called 'watered down expertise', Maurice ran two one week courses on it for engineers from around the country at PODPS, Kensington. There were a whole series of courses which I organised at that time."

Peter Bird – born 1934, died 6th August 2017. After a career in the Merchant Navy achieving his Masters certificate 'discovered' computing, studied programming and applied for Jobs in computing. Interviewed by Lyons for an operator job and joined Lyons 1964 as an operator on the LEO III. Promoted rapidly to Operations Manager, then overall Systems Manager. After retirement became interested in the history of Lyons and in the LEO story resulting in the publication of his books on LEO and subsequently on Lyons the Food Empire. The LEO Computer Society book LEO Remembered is dedicated to Peter. Peter's obituary was posted on the Guardian Newspaper website in the OTHER LIVES section on 10thSeptember 2017 at https://www.theguardian.com/technology/2017/sep/10/peter-bird-obituary On October 14th it appeared on page 38 of the Guardian print edition in the Other Lives section of the Saturday edition. The obituary is also posted by Elisabetta Mori in http://ta.mdx.ac.uk/leo/in-memory-of-peter-bird/http://ta.mdx.ac.uk/leo/in-memory-of-peter-bird/ and **Wikipedia** posted an obituary at https://en.wikipedia.org/wiki/Peter_Bird_(IT_manager)

George Booth – Died 19th September 1959, aged 90, Company Secretary and Director of J. Lyons, made the case to the Lyons Board for the company to commit itself to build a business computer and to collaborate with Cambridge University with its EDSAC project by providing some funding for the project in exchange for help in setting up the LEO project. His support was crucial in getting the support of his fellow board members; Earlier responsible for recruiting John Simmons as someone to study and improve the efficiency of Lyons. Obituary written by Isidore Gluckstein in Lyons Mail October 1959.

Dan Broido – 1903-1990 Born in Siberia of politically active parents, refugee to Germany from Soviet oppression, took degree in Mechanical Engineering in Berlin, and became an engineer at the firm of Rotaprint, who sent him to the UK in 1934 to work in their London branch. Worked for Caterpillar Tractors during World War II on nationally important work, and subsequently for a Company interested in developing automatic reading equipment, Broido filed over 100 patents including one of the earliest bar code systems. The company was taken over by ICT but in 1956 he was recruited by LEO as Chief

Mechanical Engineer charged with developing optical reading facilities. This resulted in the development of Lector and later Autolector. When LEO, and later ICL started selling computers in Eastern Europe including Russia, Broido played a key role in the success of that enterprise. A biographical sketch of his carrer can be found on pages 202 to 203 in his book LEO: the World's First Business Computer. http://www.kzwp.com/lyons.pensioners/obituary2B.htm (page 1)

David Caminer – **1915 -** 2008 joined Lyons before World War II as a Management Trainee, his career was interrupted by National Service, losing a leg in the battlefields of North Africa, before returning to Lyons and being appointed head of the Systems Research Office ,followed by taking a prominent and leading role in the establishment of LEO. Described by John Aris as the inventor of Systems Analysis, his methodological approach was a key factor in the success of LEO. His ambition, following his retirement was to ensure that the story of LEO would take its proper place in the history of computing. He helped fulfil that ambition by his writing and the establishment of the LEO Foundation. See also a biographical sketch on page201 of Peter Bird's LEO: the World's First Business Computer

Obituaries and Tributes

Financial Times (Alan Cane)

The Independent (Martin Campbell-Kelly)

The Daily Telegraph

The Times

The Guardian (Frank Land)

The Jewish Chronicle

The Richmond and Twickenham Times

The Liverpool Daily Post

The New York Times (Douglas Martin)

The Atlanta Journal Constitution

The Chronicle Herald, Halifax, Nova Scotia

The Day, Connecticut

The LEO Society website (Frank Land)

Vnunet.com (Iain Thomson, San Francisco)

Star Tribune, Minneapolis-St Paul

Ameblo, Japan

Guardian Blogs

Gadsden Times

Switched .com (Will Safer)

Booksellers Association (Martyn Daniels)

IT History Society

Scotts news.blogspot.com

BBC Radio 4 'Last Word'

Computing (Iain Thomson)

Twinings Tea

Centaurs Rugby Club

Electronicsinfoline.com

Computeach

Computing- Letters to the Editor (R.Sarson)

Wikipedia

The Test Bed- Personal Computer World

Fujitsu - ICL pensioners (Frank Land)

Chicago Tribune

The Eponymous Pickle (Franz Dill)

Funeral piece (Hilary Caminer)

http://www.telegraph.co.uk/news/obituaries/2188963/David-Caminer.html
http://en.wikipedia.org/wiki/David_Caminer
http://www.nytimes.com/2008/06/29/technology/29caminer.html
http://boingboing.net/2008/06/29/computer-pioneer-and.html
http://www.guardian.co.uk/technology/2008/jul/11/1
http://www.nytimes.com/2008/06/29/technology/29caminer.html

Jackie Caminer – died January 2017 aged 94, wife of David Caminer. Her daughter Hilary Caminer writes: `
My mother, Jackie, died this morning peacefully at home aged 94. Without her, my father's LEO work would have been much harder for him - they were heroes and heroines those LEO partners.

She had a fine career in her own right as a teacher - teaching not only here but in Brussels and Luxembourg when my father was installing computers for the EU. She was also an ardent campaigner on

adult education and on local issues as well as a fine dancer, artist and craftswoman. She missed my father terribly and counted many of his LEO colleagues as personal friends.

Doug Comish writes: I was very sorry to hear that your mother had died. She was a quite remarkable character with many accomplishments and a most wonderful wife for David.
She was a super support for him during an exciting and important career.
When you look back at what was achieved with LEO it was remarkable. It was a privilege to work with that outstanding team of people from all disciplines—from application designers, programmers, operators, design, development, and production engineers and marketeers. The manner in which they all pulled together and overcame problems was probably unique.
Your father played the major role but Jackie was a great support. You can be very proud of them.

Hamish Carmichael – died July 2017 aged 83. Hamish after a career with ICL became an active member of Computer Conservation Society. Always a good friend of LEO. Author of book of reminiscences and stories of ICL (including LEO) employees. Computer Conservation Society obituary
http://www.coymputerconservationsociety.org/index.htm

Joe Crouch – Died 2018. Joe Crouch joined LEO as a trainee programmer and quickly rose to Senior Programmer/Consultant Status, working at Hartree House. When Ilford Limited acquired a LEO II Joe headed the LEO team helping to establish the computer's systems. Subsequently he joined Leo Fantl in South Africa as head of the Programming group. (noted by Norman Witkin)
Leo Fantl writes "A key area (in our operations) … was production, which covered our operating, data preparation, and local mine data capture. Joe Crouch took the lead here. ….In many ways Joe was another Derek Hemy, incredibly quick to grasp a new point, clear thinking, and a good writer. His direction of the preparation and subsequent management of operations was outstanding. I had chosen Joe to succeed me but this turned out to be not to his liking. Later he did much difficult design work for the larger group, notably Sage Life, the group's insurance company" Joe married a local Afrikans girl.
John Godwin writes; "I remember them (Bob Day and Joe Crouch) as being among the pioneers of computers in South Africa. In the nineteen sixties LEO III/2 at the Johannesburg bureau was the first commercial multi-processing machine in the country.
Along with Leo Fantl and their colleagues they changed the way the Mines and other large companies ran their businesses. Today everyone is a computer expert, but then they really were. I am glad I knew them, true trail blazers."

Ian Stewart Crawford
Born in Eltham, Taranaki, New Zealand. Oldest of 3 born to Dan a doctor and Kathleen a nurse. Excellent sportsman and chess player. Won the Auckland chess championship. At 16 he left New Plymouth Boys High and worked for a travel company. When he was 21 he did a Bachelor of Science at Auckland University in Mathematics. He had his heart set on learning computers. He travelled to Sydney and approached IBM for a job but they required a PHD or an actuary. This would take another 5 years so Ian decided to leave Australia. Went to England in 1956 and joined LEO Computers and then joined PA Consulting as a computer consultant https://www.paconsulting.com/about-us/ before returning to NZ beginning of 1966 after getting married. He became an independent management consultant in NZ and had approximately 100 clients in his 30 years before retiring in 1996. He set up the Long Range Planning Society in NZ but this organization does not appear to exist any longer. When he retired he began work on a computer program written in PROLOG on Natural Language Processing which he continued to work on until his health began to fail at the beginning of 2018. He is survived by his wife Virginia Crawford, his daughters Sue Crawford (Independent IT consultant), Kate Everett (Chemical Engineer) and Joanna Crawford (English teacher at Massey University). He had 7 grandchildren. His brother (a doctor and polio researcher) still resides in London.

Mike Daniels – died March 2018, worked in Service Bureau**,** Hartree House in Programming and Support 1962-1966**.** He went on to work with several companies, including UNISYS, RCA (in America), III, an American Company back here. He worked on computer systems all his working life, all over the world. He was mainly involved in print/newspapers but also programming with Concorde. That said, he never forgot the early days.
He was a super guy, always cheerful. I'm so glad you had good memories. Please pass on to anyone who knew him (From Betsan Daniels).

Bob Day – Died 2018**.** Bob was recruited in 1960 by Leo Fantl to join the newly formed LEO/Rand Mines collaborative venture in Johannesburg, South Africa. Bob, of Afrikan descent, was one of a handful recruited, all of high quality joining within that first period. Bob stayed in a senior role until his retirement.
Leo Fantl writes "Bob Day was a typical South African. With an outstanding secondary education record, he joined the Post Office as a technical apprentice, and completed his training as the top performer for the whole country. Bob is mainly Afrikans but totally bilingual . When he took our appreciation course, he had never done any programming, but I still remember his hostile stare during my lectures –and how I leaned over him while he was writing his test, to see if he was actually writing sense. He got 100 per cent.' (User-Driven Innovation, p.300)
John Godwin writes: "In the nineteen sixties LEO III/2 at the Johannesburg bureau was the first commercial multi-processing machine in the country. Along with Leo Fantl and their colleagues they (Bob Day and Joe Crouch) changed the way the Mines and other large companies ran their businesses. Today everyone is a computer expert, but then they really were. I am glad I knew them, true trail blazers".

Leo Fantl – 1924-2000 Came to UK in June 1939 as a refugee from Czechoslovakia. Joined RAF age 18 and received technical training. Recruited by Lyons as Technical Trainee in the Planning Department in 1949, but was transferred to the LEO enterprise in 1950 to join Derek Hemy as a pioneer programmer. Despite a lack of formal training became a first rate mathematician involved in developing mathematical software and doing ground-breaking work in the problem created by rounding errors. Played major role in most of the early LEO applications including the tax tables for the UK Inland Revenue. In 1960 he was seconded to work on LEO's first overseas venture, the joint establishment with Rand Mines of a LEO III computer bureau in Johannesburg. He spent much of his remaining career managing the computer operations of Rand Mines by then the sole owners of the bureau. A brief biographical sketch can be found on page 202 of Peter Bird's LEO: the World's First Business Computer.
http://www.thocp.net/biographies/fantl_leo.html

Gordon Foulger – 1942-2011 After graduating from Queen Mary University with a degree in General Science he became a LEO programmer seconded to work on GPO programs, including the Giro and telephone billing. He became a database specialist and consultant as his career evolved.
http://www.gordonfoulger.co.uk/obituary.php

Bob Gibson – born 1927, died August 2016. He trained as electronic engineer as part of National Service. After working as an electronic research engineer in Civil Service, recruited by LEO as trainee maintenance engineer. Took responsibility for training customer engineers and rose to oversee all LEO training as well as managing engineering maintenance services, and personnel. Briefly left LEO to become a management consultant but returned to become head of customer support services for EELM. Completed career with ICL as manager Large Projects before setting up his own consultancy. Retired 1988 and published book on Project Management. Gained a reputation as a safe pair of hands for complex and difficult assignments. One of the stalwarts whose contribution played a key role in the success of LEO.

John Gosden – 1930-2003 Joined LEO as a programmer in 1953 after taking a degree (pass) in Mathematics at Cambridge University and made rapid progress with his understanding of software. Played a key role in the design of systems software for LEO II and LEO III. Left LEO in 1961 to emigrate to the USA for a sterling career in computing including acting as advisor on computer matters to the US Government.
A biographical sketch of his career can be found on pages 203 and 204 in Peter Bird's LEO: the World's First Business Computer.
http://www.leo-computers.org.uk/gosdenobit.html

Kit Grindley - born in Clapham< London, April1929, died October 26th 2018 in Sydney Australia. Kit Grindley after graduation from LSE in 1956, started as a Management Trainee in Lyons in 1956 and was a part of the LEO team of LEO I and LEO II programmers. He subsequently enjoyed a successful and varied career as a computer professional, This included compiling an annual review of the chief issues faced by CIOs when working as a Director for Urwick Diebold, a subsidiary of Urwick-Orr and Partners, acting as a consultant for Price Waterhouse Coopers (PWC), publishing a number of book on computer management including Systematics, editing the Journal IT Reviews working for and being awarded a PhD (197 2) by the London School of Economics, followed by being appointed to, first a Professorial Fellowship at the LSE

sponsored by F International and later by a part-time chair in Systems Analysis sponsored by PWC also at the LSE. His academic career included a stint as Adjunct Professor at the University of Technology, Sydney. His wife Liz notes of his LEO years: "…(those who) knew him during those crazy, exciting and trail blazing years. He was such an exceptional person and we are all lucky to have loved him. Such a great brain and so many talents." His death is noted in the Sydney Morning Herald – see
Link to SMH obituary: http://tributes.smh.com.au/obituaries/smh-au/obituary.aspx?n=christopher-grindley&pid=190608434

John Grover – Born December 1924, died 2000. After National Service in the RAF where he gained his pilot's wings, joined Lyons as a Management Trainee in 1947 working on Bakery Accounts. Recruited to the new LEO team as a programmer in 1950, took responsibility for a number of the early LEO applications Including the world's first business application, the valuation of bakery output. David Caminer paid this tribute to John Grover. "John played an invaluable part in out very very small team. He followed the methodology that we laid down unswervingly and made it possible to get it firmly established as newcomers were drawn in. He was a fine trainer and many of the young men and women who were recruited learned the new discipline working under him." He left LEO in 1956 to join Derek Hemi at EMI working on the EMIDEC. A short biographical sketch can be found on page 204 in Peter Bird's LEO: the World's First Business Computer.
http://www.computerconservationsociety.org/resurrection/res24.htm#d

Peter Gyngell – born 23 February 1930, died 6thJune 2018 at his home in Wollongong, Australia. Peter was born in Wales, graduated from RADA in 1948, but did not follow an acting career. He became involved with LEO in 1958 working for the Ford Motor Company on their LEO II computer at Aveley on the huge Ford spare part application. He played a critical part in the success of that work. He subsequently joined LEO Computers Limited and was appointed manager of the LEO operations Australia in 1961. Neill Lamming writes: "As General Manager of LEO Australia when it was formed in 1961, Peter had a massive presence in the early business computing market in Australia. He personally led the sales campaigns which resulted in spectacular wins against established competitors like IBM with such major organisations as Shell Australia, Colonial Mutual Life, H C Sleigh and Tubemakers of Australia. He was a legend who will always be remembered warmly by those who worked with him." A more extended obituary is held in the LEO Computers Dropbox archive at
https://www.dropbox.com/preview/LEO%20Oral%20History%20project/LEO%20Memoirs%2C%20Reminiscences%20and%20Anecdotes/PETER%20GYNGELL%20Obituary.doc?role=personal

Douglas Hartree – 27.03.1897-12.02.1958, eminent Cambridge Scientist noted for his contribution to a number of fields of study including early computing – as an example he was the first civilian to programme ENIAC - played a crucial role in the collaboration between Cambridge University and Lyons in the development of LEO. "Hartree's fourth and final major contribution to British computing started in early 1947 when the catering firm of J. Lyons & Co. in London heard of the ENIAC and sent a small team in the summer of that year to study what was happening in the USA, because they felt that these new computers might be of assistance in the huge amount of administrative and accounting work which the firm had to do. The team met with Col. Herman Goldstine at the Institute for Advanced Study in Princeton who wrote to Hartree telling him of their search. As soon as he received this letter, Hartree wrote and invited representatives of Lyons to come to Cambridge for a meeting with him and Wilkes. This led to the development of a commercial version of EDSAC developed by Lyons, called LEO, the first computer used for commercial business applications. After Hartree's death, the headquarters of LEO Computers was renamed Hartree House. This illustrates the extent to which Lyons felt that Hartree had contributed to their new venture." From Wikepedia at https:/en.wikipedia.org/wiki/Douglas_Hartree

George A. Hayter – Died April 2015 in Northern Cyprus. Joined LEO about 1964/5, on systems and sales, at Allied Suppliers, started at Hartree House, then Computer House and Stag Place. Subsequently worked at BOAC under Peter Hermon, then headed the Stock Exchange computer transformation, before setting up his own consultancy for the financial sector.

Derek Hemy – !920 –2000, Joined Lyons as Management Trainee 1939. Did war service in Royal Corps of Signals. Returned to Lyons in 1946 in Systems Analysis Office under David Caminer. Selected as first LEO programmer, a role in which his performance was outstanding. Left LEO in 1955 to senior role in EMI's venture into computing with the EMIDEC. Transferred to ICL when they took over EMI computing and

later became computer consultant for Unilever. More biographical details in Bird, P. J. LEO: The First Business Computer, pp. 204- 205.

Ray Hennessy – Programmer, consultant, LEO Computers Society stalwart and Committee Member, spent 32 years at LEO before retirement. Born 1934 died 15th November 2016. Oral History edited transcript https://www.dropbox.com/home/LEO%20Oral%20History%20project/Leo%20Interviews?preview=Ray+Hennessy+edited+P2.doc Obituary by John Daines Dropbox https://www.dropbox.com/home/LEO%20Oral%20History%20project?preview=Ray+Hennessy+Obituary+John+Daines.doc

Mavis Hinds – 1929-2009 Worked for the Meteorological Office and used LEO I for weather forecasting – the earliest use of computers for modelling the weather in the early 1950s. http://onlinelibrary.wiley.com/doi/10.1002/wea.502/abstract

Derek Jolly – Born 1930, Died June 2018. Joined LEO circa 1953-54, After grammar school started training as an accountant, but decided to try something else and was interviewed by David Caminer, and Tony Barnes and offered a job with LEO I as an operator. Worked on LEO I, LEO II and LEO III. Became shift leader and then Chief Operator. Left LEO in 1974 to join Access at Southend. Retired aged 60. Derek was one of the most popular people at Hartree, always caring and very competent in his various roles.
Oral History in Dropbox
https://www.dropbox.com/search/personal?path=%2F&preview=Derek+Jolly+edited+P2.doc&qsid=26418865507404425279799032559688&query=derek+jolly&search_token=maaZCi5EZfs9ghMHde3MaOmE5glkeIs7mVlUbNhfSkQ%3D

Ernest Joseph Kaye – 1922-2012 Joined John Pinkerton as his assistant in 1949 in the design of LEO I and later LEO II, having been recruited as an electronic engineer from GEC. Later took on the role of procurement officer for the engineering side of LEO. Retired in 1968 to the family firm of renting material for television and theatre productions. See also page 205 for a biographical sketch in Peter Bird's LEO: The First Business Computer.

Ben Rooney in Wall Street Journal http://blogs.wsj.com/tech-europe/2012/05/07/u-k-computer-pioneer-dies/

Daily Telegraph 10th May 2012 http://www.telegraph.co.uk/news/obituaries/9255130/Ernest-Kaye.html

From BBC's Jamillah Knowles on the Next Web
http://thenextweb.com/uk/2012/05/07/business-computing-pioneer-ernest-kaye-dies-aged-89/

From Frank Land in Guardian Online 14th May 2012
http://m.guardian.co.uk/technology/2012/may/14/ernest-kaye?cat=technology&type=article
http://www.youtube.com/watch?v=GE6TX70A3Rc
http://blogs.wsj.com/tech-europe/2011/11/14/worlds-first-business-computer-celebrates-60th-anniversary/
http://www.bbc.co.uk/blogs/outriders/2011/11/leo_making_history.shtml

Ernest Lenearts – 1910-1997 Despite an interest in things technical his parents persuaded him to take a clerical job at J. Lyons starting in the late 1920s. Bored by his job he asked for more technical training in the hope of getting a job in the Lyons laboratories. His chance to progress came during World War II. In 1941 he became a wireless mechanic in the RAF rising to the rank of sergeant before demobilisation. He returned to Lyons, but was now appointed Radio Mechanic working on innovative microwave technology. On the inauguration of the collaboration between Cambridge University and Lyons on the EDSAC/LEO project he was sent to Cambridge for the year 1948 both to learn about computer technology and to help in the design of EDSAC. When Lyons commenced building LEO he joined John Pinkerton in the design team. He made many contributions and also helped in the writing of many technical papers including one selected as the best paper of that year. He subsequently took an interest in the man-machine interface including working on speech recognition. He retired in 1969. A biographical sketch of his career can be found on pages 206 to 207 of Peter Bird's LEO: the World's First Business Computer.
http://www.cs.man.ac.uk/CCS/res/res17.htm#f

George Manley – 1938-2011 LEO engineer, rising from apprentice to Chief Commissioning Engineer. After an illustrious career with LEO was headhunted by Honeywell before in 1974 returning to what was now ICL. http://www.leo-computers.org.uk/images/GeorgeManleyObit.pdf

Donald Moore – 1920-2013, started his career in computing by setting up and managing the Army Payroll Centre with an IBM 705, subsequently took over the Shell-Mex & BP LEO III computer Centre at Hemel Hempstead. Obituary: **http://announcements.telegraph.co.uk/deaths/169330/moore**

John Denys Neale - born October 1936, died 2006, Engineer and Entrepreneur founded company to help users transfer data from one make of machine to another. Their big break came when Phoenix Insurance decided to update to the IBM 360 from their old system (Editor: LEO III/33). Once again they had no way of transferring their huge database from the old system to the new. The only way they could achieve this was by manually re-entering all the information. Since John understood both formats, he managed to persuade them that he could take on the task of automating the transfer. He was given (in those days) a huge order which he used as the basis to build his company, appropriately called Transdata Ltd.
http://home.btconnect.com/Amaya/Obit_JDN.pd

Robert E Peel – He was an intrinsic part of the Master Routine team with such luminaries as Adrian Rymell, Colin Tully, Nigel Dolby, Sheila Milne and I'm sure a few others whose names I have forgotten. The Intercode Translator team interacted closely with the Master programmers and I remember Bob as a thoroughly pleasant and competent member of that illustrious team. I think he worked on the Allocator/Loader routine which had to take the translator output and do something sensible with it. I remember nothing but the great professional relationship we had with him.

John Pinkerton – 1919-1997 After doing research into radar systems and receiving a PhD at Cambridge recommended by Maurice Wilkes to Lyons as the Engineer to design and develop. He joined Lyons in January 1949 and started to build the small team of engineers which succeeded in building LEO I as a machine based on the EDSAC design but significantly modified for business data processing. In 1959 he was appointed a Director of LEO Computers Limited, but resigned on the merger creating EELM. On the further creation of ICL he took charge of research into the product lines being developed by EELM. Subsequently he took a leading role in the development of International Standards and represented the UK in bodies such as the European Union's ESPRIT project. He also became Chairman of the editorial Board of the ICL Technical Journal. As a tribute to his outstanding qualities the IET inaugurated an annual Pinkerton Lecture and the WCIT set up an annual Pinkerton Award to the years leading apprentice. A short biographical sketch can be found on page 208 of Peter Bird's LEO: the World's First Business Computer.
http://www.independent.co.uk/news/obituaries/obituary-john-pinkerton-1144708.html?pageToolsFontSize=200%25
http://www.cs.man.ac.uk/CCS/res/res19.htm#g
http://ieeexplore.ieee.org/xpl/freeabs_all.jsp?arnumber=707576
http://conservancy.umn.edu/bitstream/handle/11299/107600/oh149jmp.pdf?sequence=1&isAllowed=y
https://www.cliftoncollege.com/external/clifton-memories/john-pinkerton-and-the-first-business-computer/

Anthony Salmon – 1916-2000 A member of the ruling Salmon and Gluckstein family, founders of J. Lyons & Co, was assigned Managing Director of LEO Computers Limited on its foundation in 1954 and became a main board Director of the parent company in 1955. He played an active role in promoting LEO sales using his extensive business contacts. Ceased active involvement after merger of LEO with English Electric in 1963, though nominally Vice-Chair of merged company. A short biographical sketch can be found on page 208 of Peter Bird's LEO: the World's First Business Computer.
http://www.kzwp.com/lyons.pensioners/obituary2S.htm (page 1)

John Simmons – 1902-1985 after gaining a first class degree in Mathematics from Cambridge University he was recruited by George Booth, Lyons company secretary as a Management Trainee and statistician with a brief to review and develop the Lyons business processes. Under his tutelage many innovations to business processes were introduced and in 1932 he established the Systems Research Office. In 1947 he sent two of his managers to the USA to study if Lyons could learn from American business processes. The outcome of the visit was the famous Standingford/Thompson report suggesting the possibility of computers as an engine for making the company more efficient. He used his own reputation and authority to endorse the idea and the resulting collaboration with Cambridge University to build LEO. He was

appointed to the Lyons Board in 1954 as an Employee Director and a year later as a full Director. His reputation in the business world was an important factor in the establishment of LEO, the product of a catering company, as one of the leading computer supplier in the UK and further afield. A biographical sketch can be found on pages 209 o 210 of Peter Bird's LEO: the World's First Business Computer.
http://www.oldbrightonians.com/notable-obs/business/john-simmons-bc.-1916.html
http://www.oxforddnb.com/view/10.1093/ref:odnb/978019 209 to 210 in Pet8614128.001.0001/odnb-9780198614128-e-57059?rskey=A6LhXK&result=4

Oliver Standingford – 1912-1980, Senior Lyons Manager who at the behest of John Simmons, visited the USA with T.R. Thompson. They jointly wrote the report which was instrumental in the initiative which led to Lyons building the LEO computer. http://www.kzwp.com/lyons.pensioners/obituary2S2.htm

Robin Stanley-Jones – Died 2013, joined as a technician around 1961 and worked at Minerva Rd; did 24/7 shifts on III/1 at Hartree House; then went with LEO III/8 to Australia (Tubemakers of Australia) (1963?). He returned to Minerva Road in 1967 (where he met his wife) and worked in development until the company became ICL. He remained in IT, mostly with Digital Equipment, until his retirement.

George F Stevens – 1911-2002, senior Lyons manager who took responsibility for the running of the Lyons LEO Computers when LEO Computers Limited merged with English Electric. He subsequently oversaw the switch by Lyons to IBM computers.
http://www.kzwp.com/lyons.pensioners/obituary2S2.htm

Thomas Raymond Thompson (TRT) – 1907-1976. The Lyons Mail published an appreciation of TRT in its April 1976 issue. This can be found in the Warwick University Simmons archive filed as 383-S4-14-2-9.jpg. TRT was one of the giants of the LEO enterprise.
http://www.kzwp.com/lyons.pensioners/obituary2T.htm
http://www.oxforddnb.com/view/article/101160
The Lyons Journal published a *personality profile* of T.R. Thompson in August 1961. A copy of the profile can be found in the London Metropolitan Museums Archive (LMA) as part of its collection of J .Lyons & Co. papers. It has been copied by Neville Lyons and is available from him.

Colin Tully – 1936-2007 Joined LEO in 1960 after graduating with a degree in Economics from Cambridge. University. Became very much involved with Software Development including coding the LEO III Master Routine. Subsequently mixed an academic career with consultancy and practice at Standard Telephone and Cables. Had stints as an academic researcher at York University, Cranfield and the London School of Economics, finishing his career as Dean and Professor at Middlesex University. Maintained his interest in LEO and its achievements via the LEO Foundation and the LEO Computers Society.
http://www.bcs.org/content/conWebDoc/16757
http://comjnl.oxfordjournals.org/content/52/3/388.short
http://www.leo-computers.org.uk/images/colintullytribute.pdf

Wallace Weaving – Born 1931, died 6th November, 2012. Wallace joined EELM in the UK but was transferred to EELM in Australia early in 1963. An account of his career was published in the Australian All Stars (ICL) magazine in 2013 and an edited version is held in the LEO Computers Dropbox archive,
https://www.dropbox.com/preview/LEO%20Oral%20History%20project/LEO%20Memoirs%2C%20Reminiscences%20and%20Anecdotes/Wallace%20Weaving%20Obituary.docx?role=personal
Pam Garnsey (with some added and fond reflections from Neil Lamming, Mike Benton and Kent & Sheilagh Brooks)

Mike Webb – Died November 2015 at his home in Anglesey. Joined LEO as a mathematician and operational research specialist. After leaving LEO became an academic, first with the LSE and subsequently as head of business studies at Manchester Metropolitan University.

Sir Maurice Wilkes – 1913-2010 Maurice Wilkes, played a leading role in the design of the Cambridge University EDSAC Computer in the late 1940s and in return for some funding for that project from J. Lyons & Co, allowed the Lyons team to use the EDSAC design as the basis for LEO I, cooperating with the LEO team and helping in the selection of J. Pinkerton as the chief LEO Engineer. He will be remembered as a good friend of LEO.
http://en.wikipedia.org/wiki/Maurice_Wilkes
http://www.guardian.co.uk/technology/2010/nov/30/sir-maurice-wilkes-obituary

http://www.telegraph.co.uk/news/obituaries/technology-obituaries/8171435/Professor-Sir-Maurice-Wilkes.html

Peter Wood – 1918-2013, who has died at the age of 95, was given a good send-off in June, well attended by family, old boys and members of his bowls club. Peter was very modest about his war, but it was revealed that he was evacuated from Dunkirk, trained as a commando, fought in India on the North-West Frontier, was captured by the Japanese – and escaped! He ended the war as a 27-year-old Lt-Colonel, still in the Far East. An England-schools rugby international, he became a pillar of the Association, and a leading member of both the cricket and rugby clubs. He was Ground Secretary for many years, and a vice-President of the Association and those clubs. After the war he was responsible for the first commercial computer in the country, the LEO I, as DP Manager for the Lyons Organisation. A biographical sketch can be found on page 212 of Peter Bird's LEO: the World's First Business Computer.

Anatol Zak – **LEO III engineer, 1934-2015** See https://www.dropbox.com/search/personal?path=%2F&preview=Anatol+Zak+Biographical+Notes.doc&qsid=6734690361687033961319242580169 0&query=anatol+zak&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D for brief bio.

Others whose death has been noted, but of whom more information would be welcome:

Jamie Anderson
John Merton Baker
Geoffrey Barnsley
Norman Bishop
Ray Bradshaw
Geoff Christopher
John Coombs
Geoff Cooper, Design Engineer, died 4th January 2017
Jo Davies
Keith Davies
Colin Davis
Ernie Doors
Wally Dutton
Bob Elmer
Alan Evans
Mavis Everitt (nee Tin(d)ale)
Jim Feeney, died April 2016, aged 72 after a short illness
Sean Ferguson
David Garood
Mike Gomm (Australia)
John Hemstead
Alan Hooker Jr, died 26th September, 2017
Trevor Hughes
Ron Hurst
Bob Knight, Died May 2016
Michael Knowles
Alan Lake, died May 8th 2017
Colin Lewry, died 21 September, 2017
David Litten
Ross Macadam
Ken MacLachlan
Eve Manley
George Manley
Bob Melling
Reg Miller

Sam Mitra, joined J Lyons as electronic engineer, LEO 1953, died 1985
Frank Moran
David Musson, died May 2016
Peter O'Keeffe, died February 2017
Fred Owen
Bruce Parkin
Geoff Parry
Bernard Pierce, died April 2016
Mrs Pam Procopiou, died April 2016, Hartree House Receptionist
Gerry Randall
Francis Richards
Mike Roberts
Brian Rogers
John Rookes
Dave Rowberry, Software Programmer, later member of Animals group, died 2003
Geoff Rowett
Ted Rowley
Ann Sayce
Anne Smewing, died 2012
Frank Thorne
John Tomlinson
Frank Walker

Note: Would anybody who has further information about people on the list including dates of birth and death, when at LEO or its clients, position or role, links to obituaries, pictures [please send them to Frank Land {f.land@lse.ac.uk}

Brief biographical sketches of a number of Lyons and LEO people can be found in **LEO, the First Business Computer**; P. Bird, Hasler Publishing, 1994, pages 200-212.

The following people – in alphabetical order - are noted:

Tony Barnes, Daniel Broido, David Caminer, Mary Coombs, Leo Fantl, Isidore Gluckstein, Montague Gluckstein, Samuel Gluckstein, John Gosden, John Grover, Derek Hemy, Ernest Kaye, Frank Land, Ernest Lenaerts, Joseph Lyons, John Pinkerton, Anthony Salmon, Ray Shaw, John Simmons, Oliver Standingford, Thomas Raymond Thompson, David Wheeler, Maurice Wilkes, Peter Wood.

ORAL AND NARRATIVE HISTORIES

Note: The LEO Computer Society uses Dropbox to hold records of interviews, reminiscences and memoirs recorded by the Society. The Dropbox links are provided for some of the records below. However the link can only be activated by a few designated members of the Society. Anyone who wishes to download a particular item, please apply to Frank Land at f.land@lse.ac.uk

- **Interviewee: John Simmons**

Interviewer: Chris Evans
Date of Interview: !970s
Edited Transcript: Science Museum
Copyright: Science Museum
Reprinted as Interview between J.R.M. Simmons, Director and Chief Comptroller of J. Lyons & Co., and the Science Museum, London. Appendix B, in Caminer, D.T., Aris, J.B., Hermon, P.M., Lanf, F.F. (editors and contributors) **LEO The Incredible Story of the Wold's first Business Computer,** McGraw Hill, New York, pages 360-374

- **John Pinkerton (1)**

Interviewee: John M.M. Pinkerton 1919 - 1997

Interviewer: John Pinkerton, self interview
Date of Interview: 23.08.1988
Role in LEO: Chief Engineer
Joined LEO: 1948

Abstract: Pinkerton begins by discussing his education and wartime work in radar technology in England. He then describes his movement into the computer industry after World War II and his work on the LEO I and LEO II computers. In this context he discusses the British computer firms J. Lyons and Company, Leo Computers, English Electric Co., and International Computers Ltd.

Repository: Charles Babbage Institute, University of Minnesota, Minneapolis
Transcript: 54 pages
Copyright: Charles Babbage Institute
Download: http://conservancy.umn.edu/bitstream/handle/11299/107600/oh149jmp.pdf?sequence=1&isAllowed=y

❖ **John Pinkerton (2)**

Interviewee: John M.M. Pinkerton 1919-1997
Interviewer: Chris Evans
Date of Interview: 1975
Role in LEO: Chief Engineer
Joined LEO: 1948

Abstract: **John Pinkerton joined Lyons as chief engineer at the very beginning of the LEO initiatve and** led the engineering side until the merger with English Electric. He held senior engineering appointments within the merged companies until his retirement. Much of the success of the LEO enterprise lay in his genius for bringing innovative ideas to practical fruition – one of the true heroes of the information age.

Repository: London Science Museum
Audio Recording: Tape 6 in Christopher Evans's 'Pioneers of Computing'
Transcript: Evans, Chris, (1983) **Pioneers of Computing**, IEEE Annals of the History of Computing, Vol. 5, No 1, pp 64-72, January-March.
Copyright: Audio, London Science Museum, Transcript, IEEE

❖ **Interviewee: Mary Coombs (née Blood) 1** **DOB:** 1929
Interviewer: Thomas Lean, British Library
Date of Interview: 2010 **Reference: C1379/16 Role in LEO:** Programmer
Joined LEO: 1953
Role in LEO: Programmer

Abstract: This is a full oral history of the life of Mary Coombs as part of the British Libraries Oral History series on the life of selected British Computer scientists.

Repository: British Library, National Life Stories, an oral history of British Science
Type of recorder: Marantz PMD661 on secure digital (Sessions 1-4) Marantz PMD660 on compact flash (Sessions 5-9) Recording format: Wav 24 bit 48 kHz (sessions 1-4) WAV 16 bit 48 kHz (sessions 5-9) Total no. of tracks 9 Stereo Total Duration 07 hours:14 minutes:40 seconds
Transcript: http://sounds.bl.uk/related-content/TRANSCRIPTS/021T-C1379X0016XX-0000A0.pdf
Copyright/Clearance: Open except for 00:56:57 – 00:59:15 of track 7 and 00:21:51 - 00:22:49 of track 9; these sections are closed for 30 years until June 2041.

❖ **Interviewee: Mary Coombs (née Blood) 2** **DOB:** 1929
Interviewer: Google
Date of Interview: 21.11.2011
Role in LEO: Programmer,
Joined LEO: 1953

Abstract: Google interviewed and filmed a number of old LEO employees including Mary Coombs as part of the celebration at the Science Museum of the 60th anniversary of the roll out of the first business application on the LEO I computer. Narrated by Georgina Ferry/

Repository:
Interview Text

Type of recorder:
Film: https://www.youtube.com/watch?v=Lrn24SdW64I
Copyright: Google. Free to view.

References to Mary Coombs listed in Wikipedia:

1. **Jump up ^** *"Mary Coombs". The British Library.*
2. **^ Jump up to:** *a b computingheritage (2013-09-05), Mary Coombs shares her story, retrieved 2018-07-26*
3. **Jump up ^** *Douglas, Ian (2013-09-11). "Bletchley Park celebrates women in computing". ISSN 0307-1235. Retrieved 2018-07-26.*
4. **Jump up ^** *"Women in Computing: a British Perspective - Google Arts & Culture". Google Cultural Institute. Retrieved 2018-07-26.*
5. **Jump up ^** *"Mary Coombs - Computing History". www.computinghistory.org.uk. Retrieved 2018-07-26.*
6. ^ Jump up to: *a b c d e f "Mary Coombs". Diversity in HPC. Retrieved 14 April 2018.*
7. **Jump up ^** *"Museum celebrates women in computing". BBC News.*
8. ^ Jump up to: *a b Bird, Peter J. LEO: the First Business Computer. Wokingham: Hasler Publishing Limited. ISBN 0-9521651-0-4.*
9. **^ Jump up to:** *a b c Ferry, Georgina (2004). A Computer Called LEO: Lyons Tea Shops and the world's first office computer. Harper Perennial. p. 106. ISBN 1 84115 1866.*
10. **^ Jump up to:** *a b Janet., Abbate, (2012). Recoding gender : women's changing participation in computing. Cambridge, Mass.: MIT Press. ISBN 9780262018067. OCLC 813929041.*

❖ **Interviewee: Frank Land (1)** **DOB:** 24.10.1928
Interviewer: Thomas Lean, British Library
Date of Interview: 2010 **Reference: C1379/17**
Role in LEO: Programmer, Systems Analyst, Marketing, Consultant
Joined LEO: 1953

Abstract: This is a full oral history of the life of Frank Land as part of the British Libraries Oral History series on the life of selected British Computer scientists.

Repository: British Library, National Life Stories, an Oral History of British Science

Type of recorder: Marantz PMD661 on secure digital Recording format: WAV 24 bit 48 kHz Total no. of tracks 18 Stereo Total Duration: 15 hours:06 minutes:31 seconds
Transcript: http://sounds.bl.uk/related-content/TRANSCRIPTS/021T-C1379X0017XX-0000A0.pdf
Copyright/Clearance: No restrictions except for the following sections: track 1 [between 35:38 – 35:58, and 40:36 – 41:26], track 4 [between 31:46 – 34:56], track 8 [between 13:04 – 13:15 and 47:20 – 49:19], track 9 [between 18:21 – 18:41, 20:20 – 20:21, 01:02:54 – 01:03:31 and 01:08:31 – 01:09:46] and track 13 [between 18:10 – 19:11] which are closed for 30 years (until March 2041)

❖ **Interviewee: Frank Land (2)** **DOB:** 24.10.1928
Interviewer: Google
Date of Interview: 21.11.2011
Role in LEO: Programmer, Systems Analyst, Marketing, Consultant
Joined LEO: 1953

Abstract: Google interviewed and filmed a number of old LEO employees including Frank Land as part of the celebration at the Science Museum of the 60th anniversary of the roll out of the first business application on the LEO I computer. Narrated by Georgina Ferry/

Repository: Interview Text: Dropbox LEO Interviews
https://www.dropbox.com/search/personal?path=%2F&qsid=756954199064936297118575190346 51&query=frank+land+google&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D

Type of recorder:
Film: https://www.youtube.com/watch?v=Lrn24SdW64I
Copyright: Google Free to view.

If any reader knows of any other reference please let Frank Land know at f.land@lse.ac.uk

- **Interviewee: Frank Land (3)** **DOB:** 24.10.1928

Interviewer: Professor Alan Eardley
Date of Interview: 21.02.2016
Role in LEO: Programmer, Systems Analyst, Marketing, Consultant
Joined LEO: 1953

Abstract: Professor Alan Eardley interviewed and filmed Frank Land as part of his collection of material on the history of computing for his inaugural lecture at Stafford University, April 14th 2016.

Repository: Pre-Interview response to interview questions: Dropbox LEO Interviews
https://www.dropbox.com/search/personal?path=%2F&preview=Frank+Land+Feb+2016+unedited.doc&qsid=80177254035542482665344419183340&query=frank+land&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D
Interview and Video: Editing in process
Copyright: Alan Eardley
Restrictions: Interview and video will be available to members of LEO Computer Society

- **Interviewee: Frank Land (4)** **DOB:** 24.10.1928

Interviewer: Paul Jagger, Director Archive IT
Date of Interview: 22.05.2018
Editor: Helen Carter, ArchiveIT
Role in LEO: Programmer, Systems Analyst, Marketing, Consultant
Joined LEO: 1953

Abstract: Archives IT are conducting and archiving interviews of UK individuals who have contributed to the development and evolution of IT. Frank Land has been added to the archive with a whole life interview. Ninian Eady is also in the archive.

Archive IT repository: **http://archivesit.org.uk/interviews/frank-land/**
LEO Computers Society Repository:
https://www.dropbox.com/preview/LEO%20Oral%20History%20project/Leo%20Interview%20transcripts/FRANK%20LAND%20by%20ArchivesIT.doc?role=personal

- **Interviewee: Ralph Land (1)** **DOB:** 24.10.1928

Interviewer: Martin Garthwaite as part of LEO Computer Society's Oral History Project
Date of Interview: 31st October 2011
Role in LEO: Bureau Manager, Export Manager
Joined LEO: 1954

Abstract: Ralph joined the Lyons Teashop Division in 1953 as management accountant for the Teashops and transferred to LEO in 1954. He rose to manager of the LEO City Office followed by spells in promoting LEO exports in Paris and Dusseldorf before heading the LEO/English Electric team working in Eastern Europe including Soviet Russia. His subsequent career until retirement was with Rank-Xerox and Rolls Royce working on exports to Eastern Europe. Awarded OBE and subsequently CBE for services to UK export trade.

Text: Edited by Ralph Land and Hilary Caminer
Repositary:
AAhttps://www.dropbox.com/search/personal?path=%2F&preview=Ralph+Land+unedited.doc&qsid=73304227362417986503993819006613&query=ralph+land&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D
Recording: MP3
https://www.dropbox.com/search/personal?path=%2F&preview=Ralph+Land+audio+MP3.eml&qsid=345282918973128897427445361669 09&query=ralph+land+mp3&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D
Copyright: Leo Computers Society.
Restrictions:

- **Interviewee: Ralph Land (2)** **DOB:** 24.10.1928

Interviewer: Google
Date of Interview: 21.11.2 011

Role in LEO: Bureau Manager, Export Manager
Joined LEO: 1954

Abstract: Google interviewed and filmed a number of old LEO employees including Ralph Land as part of the celebration at the Science Museum of the 60th anniversary of the roll out of the first business application on the LEO I computer. Narrated by Georgina Ferry/

Repository: Interview Text: to be completed

Type of recorder:
Film: https://www.youtube.com/watch?v=Lrn24SdW64I
Copyright: Google Free to view.

❖ **Interviewee: Ernest Kaye** **DOB:** 1922-2012
Interviewer: Google
Date of Interview: 21.11.2011
Role in LEO: Design Engineer, head of engineering procurement
Joined LEO: 1949

Abstract: Google interviewed and filmed a number of old LEO employees including Ernest Kaye as part of the celebration at the Science Museum of the 60th anniversary of the roll out of the first business application on the LEO I computer. Narrated by Georgina Ferry.

Repository:
Interview Text:

Type of recorder:
Film: https://www.youtube.com/watch?v=Lrn24SdW64I
Copyright: Google Free to view.

❖ **Interviewee: Chris J. Date** **DOB:** 1941
Interviewer: Thomas Haigh
Date of interview: 2007
Role in LEO: Mathematical Programmer
Joined LEO: 1962

Abstract: Chris Date, well known for his work on Data Base theory and practice started his career with LEO in 1962 – 1967, and provides a description of his experience on pages 7 - 9 of the transcript of the interview. Very complimentary about LEO

Repository: Computer History Museum, California
Transcript:http://archive.computerhistory.org/resources/access/text/2013/05/102658166-05-01-acc.pdf - 51 pages
Link to Museum: http://www.computerhistory.org/collections/catalog/102658166
Copyright: Computer History Museum CHM Reference number**: X4090.2007**

❖ **Interviewee: Betty Cooper (nee Newman)** **DOB:** 1930
Interviewer: Janet Abbate
Date of Interview: September 2001
Role in LEO: Programmer on LEO I and LEO II/I
Joined LEO: 1953

Abstract: Betty joined Lyons as a labour cost clerk in the Statistical Office in September 1949. In 1953 she was selected for a LEO appreciation course, and as a result was offered a job as a programmer on LEO I. Despite scepticism about what LEO would be able to do she accepted the offer. She worked on a number of applications – payroll under Mary Blood (Coombs) and Tea Blending under Frank Land. She gained a reputation as a sound and reliable programmer. She left LEO to work as a programmer with EverReady before leaving to start a family.

Reference: http://ethw.org/Oral-History:Betty_Cooper

LEO Computers Society: Oral History Project

The LEO Computers Society has initiated an Oral History Project assisted by funding from the Association for Information Technology (AIT) Trust. *Recordings and edited transcripts are held in LEO Dropbox archives. They can be accessed and downloaded by selected members of LEO Computers Society only.* **The list of Oral Histories taken to-date (January 2016) includes:**

- **Interviewee: Alan Sercombe** **DOB:** 1934

Interviewer: John Hoey
Date of Interview: 23/07/2014
Role in LEO: Programmer
Joined LEO: 1959

Abstract: Alan received degree in mathematics and after National Service joined Armstrong Siddeley as a programmer on a Ferranti Mark I. The company's merger with another aircraft manufacturer led to his leaving and joining LEO. He worked on the LEO II at Standard Motors, but in 1963 joined Peter Gyngell in Australia working with a number of LEO computers sold in Australia and later with EELM and then ICL; finishing his career in 1996 as a very senior member of the successor companies working in an administrative and legal capacity.

Repository: Audio Recording: Dropbox: Part1:
https://www.dropbox.com/search/personal?path=%2F&preview=Alan+Sercombe+Part+1+audio.mp3&qsid=311626318013212698456288289476 01&query=alan+sercombe&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D
Part 2:
https://www.dropbox.com/search/personal?path=%2F&preview=Alan+Sercombe+Part+2+audio.mp3&qsid=311626318013212698456288289476 01&query=alan+sercombe&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D
Recording: MP3/4
Text: Edited Transcripts, Part 1 and 2 Dropbox
https://www.dropbox.com/search/personal?path=%2F&preview=Alan+Sercombe+edited+P2.docx&qsid=1054321743444087815079935237 0356&query=alan+sercombe&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D
Copyright: LEO Computers Society

- **Interviewee: John Daines** **DOB:** 28th July 1943

Interviewer: Ray Hennessy
Date of Interview: 26/04/1012
Role in LEO: Computer Operator
Joined LEO: October 1961

Abstract: John was an operator in the LEO II bureau and then did acceptance trials for LEO III systems in the Minerva Road factory before moving onto System 4 trials and software development. His oral history covers the role of operators in the early days. He progressed through ICL until retirement as a senior consultant in 2002. Active member of LEO Computers Society

Repository: Audio Recording: Dropbox:
https://www.dropbox.com/search/personal?path=%2F&preview=John+Daines+audio.wav&qsid=8511619684814439624561718069912 3&query=john+daines&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D
Edited Text:
https://www.dropbox.com/search/personal?path=%2F&preview=John+Daines+Edited+P2.odt&qsid=5562607305172354359917987 1883696&query=john+daines&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D
Recording: MP3/4
Copyright: LEO Computers Society

- **Interviewee: Simon Benedictus** **DOB:** 1933

Interviewer: David Phillips
Date of Interview: 17.04.2012
Role in LEO: Statistician
Joined LEO:

Abstract: Mathematics degree from Imperial College, followed after National Service by Masters in Statistics from LSE. Joined Lyons Maid (Ice Cream division of J. Lyons) working on weather based Ice Cream forecasting. Helped define LEO Ice Cream sales job, later working on bakery sales. Remained an employee of J. Lyons.

Repository: Partially edited Transcript: Dropbox:
https://www.dropbox.com/search/personal?path=%2F&preview=Simon+Benedictus+Unedited.doc&qsid=28924991798288976813310853533124&query=simon+benedictus&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D

Recording: *Part 1*:
https://www.dropbox.com/home/LEO%20Oral%20History%20project/LEO%20Oral%20History%20Recordings/Simon%20Benidictus%20interview?preview=BENIDICTUS+PT1.m4a
Part 2:
https://www.dropbox.com/home/LEO%20Oral%20History%20project/LEO%20Oral%20History%20Recordings/Simon%20Benidictus%20interview?preview=BENIDICTUS+PT2.m4a
Recording: MP3/4
Text: Dropbox Unedited Transcripts Part 1 &2
https://www.dropbox.com/search/personal?path=%2F&preview=Simon+Benedictus+Unedited.doc&qsid=28523817330004498807401206891638&query=simon&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D
Copyright: LEO Computers Society

❖ **Interviewee: Roger Coleman** **DOB:** 1932
Interviewer: Tim-Greening Jackson
Date of Interview: 22.05.2008
Role in LEO: Computer Programmer, Systems Analyst
Joined LEO: December 1954

Abstract: Roger left Mill Hill school in 1950 to self-study to become an actuary but in 1954 responded to an advertisement for a programmer job at Cadby Hall. Joined LEO aged 22, the then youngest programmer. Rapid progress led to him being given the British Rail station to station distancing job working with John Gosden under David Caminer. The oral history is confined to his early career and the details of the BR job. A text-only Part 1 to the composite oral history provides a summary of his career to retirement. His career after leaving LEO in 1957 included managing the LEO 2/9 at Ilford Limited, working for Ford Motor Company and rising to head much of their European Computer organisation, and finishing his career as a private consultant.

Repository: Audio Recording: Dropbox:
https://www.dropbox.com/search/personal?path=%2F&preview=Roger+Coleman+unedited.pdf&qsid=928925940609405377493772875782 28&query=roger+coleman&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D
Composite Oral History: Dropbox:
https://www.dropbox.com/search/personal?path=%2F&preview=Roger+Coleman+Composite+edited+P2.doc&qsid=928925940609405377493772875782 28&query=roger+coleman&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D
Recording: Windows Media Player
Copyright: Tim Greening-Jackson, but unrestricted access permitted subject to due acknowledgements.
Restrictions: None Known

❖ **Interviewee: Alan King** **DOB:** August 1936
Interviewer: Tony Morgan Died 2017
Date of Interview: 16.08.2011
Role in Lyons: Systems Research Office, then Lyons Computer Services
Joined Lyons: Autumn 1959

Abstract: Alan studied Classics at Oxford and on graduating was taken on by Lyons in their Systems Research Office. A career working on a number of the Lyons LEO application followed by a senior role in Lyons Systems Services, formed to develop and service computer applications first on LEO machines

and later when Lyons replaced LEO with IBM computers. Acting Chief Executive Institute of Administrative Management.

Repository:
Text:
https://www.dropbox.com/home/LEO%20Oral%20History%20project/Leo%20Interviews?preview=Alan+King+edited+P2.doc
Edited Text: Dropbox.
https://www.dropbox.com/home/LEO%20Oral%20History%20project/LEOSoc%20Oral%20History%20file%20uploads?preview=Alan+King+edited+P2.doc
Copyright: Leo Computers Society.
Restrictions: None known

❖ **Interviewee: Ray Hennessy** **DOB:** December 1934
Interviewer: John Daines Died November 2016
Date of Interview: 27.04.2012
Role in Lyons: Programmer
Joined Lyons: 1959

Abstract: Joined as trainee programmer after being offered jobs by Elliott computing and English Electric.. Worked on many projects including British Oxygen. Despite temptation to join other companies remained with LEO and its successor companies working in a senior capacity on a number of Government projects and after retirement working as a consultant to ICL and its associated companies. Active in LEO Computers Society until his death.

Repository:
Text: Partially edited transcript in dropbox
https://www.dropbox.com/search/personal?path=%2F&preview=Ray+Hennessy+edited+P2.doc&qsid=07905257361119047631689560727569&query=ray+hennessy&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D
Recording:
https://www.dropbox.com/search/personal?path=%2F&preview=Ray+Hennessy+audio.wav&qsid=07905257361119047631689560727569&query=ray+hennessy&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D
Copyright: Leo Computers Society.
Restrictions: None known

❖ **Interviewee: Tony Morgan** **DOB:** June 1937
Interviewer: Ray Hennessy
Date of Interview: 08.11.2011
Role in Lyons: Commissioning Engineer
Joined Lyons: December 1947

Abstract: Joined LEO as engineer. Spent most of his career as commissioning engineer on LEO IIs and IIIs, finishing as senior commissioning engineer. In retirement LEO Computer Society's expert on all matters relating to LEO hardware. Active Member of LEO Computers Society

Text Repository:
https://www.dropbox.com/search/personal?path=%2F&preview=Tony+Morgan+edited+P2.doc&qsid=06562942885418735087845356680765&query=tony+morgan&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D
Text: Transcript being currently edited by Tony Morgan
Recording:
Copyright: Leo Computers Society.
Restrictions: None known

❖ **Interviewee: Bob Gibson** **DOB:** 18th May 1927
Interviewer: Martin Garthwaite **Died:** August 2016
Date of Interview:
Role in LEO: Manager training and customer support
Joined LEO: February 1956**:**

Abstract: Trained as electronic engineer as part of National Service. After working as an electronic research engineer in Civil Service, recruited by LEO as trainee maintenance engineer. Took responsibility for training customer engineers and rose to oversee all LEO training as well as managing engineering maintenance services/ Briefly left LEO to become management consultant but returned to become head of customer services for EELM. Retired 1988.

Repository: Unedited transcript of recording in Dropbox at https://www.dropbox.com/home/LEO%20Oral%20History%20project/LEOSoc%20Oral%20History%20file%20uploads?preview=bob+gibson+unedited+transcript.doc Edited Transcript in Dropbox at https://www.dropbox.com/search/personal?path=%2F&preview=Bob+Gibson+edited+P2.doc&qsid=2171154067559319100976298590359 2&query=bob+gibson&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D

Recording:

Copyright: Leo Computers Society.

Restrictions: None known

❖ **Interviewee: Doug Comish** **DOB:** 1926

Interviewer: Martin Garthwaite

Date of Interview: 6th December 2011

Joined Lyons: December 1949

Role in Lyons: Management Trainee to management accountant

Joined LEO: April 1956

Role in LEO: Programming, and education to head of marketing

Abstract: Born in Liverpool, educated at grammar school, took Mathematics at Kings College, Cambridge. Then National Service finishing with rank of Captain. Joined Lyons as a Management Trainee in 1949, rose to management rank in the Lyons Work Office as cost accountant. Selected to join LEO in 1956. Long and distinguished career with many roles including education, staff selection, sales and marketing finishing as head of marketing before retirement. Active sportsman, including playing soccer for Cambridge University.

Repository:

Text: Dropbox Edited Transcript https://www.dropbox.com/search/personal?path=%2F&preview=Doug+Comish+edited+P2.docx&qsid=628133329137720136280235224913 17&query=doug+comish&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D

Copyright: Leo Computers Society.

Restrictions: None known

❖ **Interviewee: Steve Farrow** **DOB:**

Interviewer: Martin Garthwaite

Date of Interview:

Role in LEO: Commissioning and Design Engineer

Joined LEO: Spring 1957

Abstract: Took Science degree at Imperial College after national service in RAF. Joined LEO after seeing an advertisement. Steve worked as a commissioning engineer first on LEO II machines including commissioning the Bull Printer on LEO II/3 and subsequently on LEO II machines. Achieved rank of Chief Engineer for LEO III. Involved in design of the abandoned LEO IV after merger with English Electric. Subsequent career from 1965 with Medical Research Council working as a design engineer.

Repository: Edited transcript https://www.dropbox.com/search/personal?path=%2F&preview=Steve+Farrow+edited+P2.odt&qsid=634264245785811359095847478837 13&query=steve+farrow&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D

Recording:

Copyright: Leo Computers Society.

Restrictions: None known

❖ **Interviewee: Ray Shaw** **DOB: 17th** April 1924

Interviewer-John Daines
Date of Interview: 27th September 2016
Role in LEO: Design Engineer, Project Manager
Joined LEO: 1949

Abstract: Joined Pinkerton as a design engineer, rising to senior design engineer for LEO I and II. Left LEO in 1956 to work with John Bennet in Australia at Sydney University. A distinguished career as project manager and design engineer with ICL followed including work on communication Systems. Retired in 1981 but carried on working as private consultant.

Repository: Dropbox
Text: Unedited Transcript located at
https://www.dropbox.com/search/personal?path=%2F&preview=Ray+Shaw+by+John+Daines+unedited.docx&qsid=184394436417698285889902056519 72&query=ray+shaw&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D
Recording:
https://www.dropbox.com/search/personal?path=%2F&preview=Ray+Shaw+interview+with+John+Daines+Sept+27th+2016.WAV&qsid=184394436417698285889902056519 72&query=ray+shaw&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D
Copyright: Leo Computers Society.
Restrictions: None known

❖ **Interviewee: Neil Lamming** **DOB:** 1938
Interviewer: Martin Garthwaite
Date of Interview: 31.01.2012
Role in LEO: Programmer, Consultant, Manager
Joined LEO : 1960

Abstract: As a mathematics graduate Neil chose LEO when offered jobs in the computing industry. Started work at Hartree House working on Army Payroll, joined team at Renold Chains and subsequently recruited to join Peter Gyngell in Australia. Rapid rise post merger to become Managing Director of ICL Australia at age 37. Left company to work on executive recruitment and retired at age 50.

Repository:
Text: Dropbox. Edited Transcript
https://www.dropbox.com/search/personal?path=%2F&preview=Neil+Lamming+edited+P2.docx&qsid=133142788101101307188136526499 47&query=neil+lamming&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D
Recording:
Copyright: Leo Computers Society.
Restrictions: None known

❖ **Interviewee: Margaret Baty** **DOB:**
Interviewer: Peter Byford
Date of Interview: October, 2015
Role Lyons:
Joined Lyons:
Abstract:
Repository:
Text:
Recording:
Copyright: Leo Computers Society.
Restrictions:

❖ **Interviewee: Ernest Roberts** **DOB: 1931**

Interviewer: Ray Hennessy
Date of Interview: April 2016
Joined LEO: 1954

Abstract: Joined LEO following Mathematics degree at Oxford University and National Service. Started as programmer under Leo Fantl working on mainly mathematical applications on LEO I. Spend whole career with LEO and successor companies as a senior application and software programmer retiring aged 60.

Repository: Transcript of recording and first edit of transcript (Alan Hooker) in Dropbox
https://www.dropbox.com/search/personal?path=%2F&preview=Ernest+Roberts+edited+P2.doc&qsid=07744281890109968756581823532303&query=ernest+roberts&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D
Recording:
Copyright: LEO Computers Society
Restrictions None known
Died

❖ **Interviewee: Derek Jolly** **DOB: 1930**

Interviewer: Cyril Platman Died June 2018
Date of Interview: 11th April 2016
Joined LEO: Circa 1953-55

Abstract: After grammar school started training as an accountant, but decided to try something else and was interviewed by David Caminer, and Tony Barnes and offered a job with LEO I as an operator. Worked on LEO I, LEO II and LEO III. Became shift leader and then Chief Operator. Left LEO in 1974 to join Access at Southend. Retired aged 60.

Repository: Edited transcript of recording in Dropbox
https://www.dropbox.com/search/personal?path=%2F&preview=Derek+Jolly+edited+P2.doc&qsid=26418865507404425279799032559688&query=derek+jolly&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D
Recording:
Copyright: LEO Computers Society
Restrictions None known

❖ **Interviewee: Peter Bird** **DOB:** 1934

Interviewer: Tony Morgan **Died:** September 2017
Date of Interview: 6th September 2016
Joined Lyons: 1964

Abstract: After a career in the Merchant Navy achieving his Masters certificate 'discovered' computing, studied programming and applied for Jobs in computing. Interviewed by Lyons for an operator job and joined Lyons 1964 as an operator on the LEO III. Promoted rapidly to Operations Manager, then overall Systems Manager. After retirement became interested in the history of Lyons and in the LEO story resulting in the publication of his books on LEO and subsequently on Lyons the Food Empire.

Repository: Edited Interview Transcript
https://www.dropbox.com/search/personal?path=%2F&preview=Peter+Bird+edited+P2.odt&qsid=39281849731538282739464284144902&query=peter+bird&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D
Recording:
Copyright: LEO Computers Society
Restrictions: None known

❖ **Interviewee: Peter Wharton** **DOB: 1941**

Interviewer: John Daines
Date of Interview: November 2nd 2016
Joined LEO: 1962

Abstract: Joined as a mathematical working on linear programming transportation applications. Long career with LEO and its successor companies working at various locations including Hartree House and subsequently Kidsgrove. His work involved hardware and software design as well as applications and

he finished with the title of Chief Engineer. Appointed visiting Professor at Southampton University. Regarded his early learning of CLEO as a key step in his understanding of design in his later career.

Repository: Unedited transcript:
https://www.dropbox.com/search/personal?path=%2F&preview=Peter+Wharton+unedited.docx&qsid=39281849731538282739464284144902&query=peter+wharton&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D
Recording: Part 1 and 2 MP3
https://www.dropbox.com/search/personal?path=%2F&preview=Peter+Wharton+Part+1+audio.MP3&qsid=39281849731538282739464284144902&query=peter+wharton&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D and
https://www.dropbox.com/search/personal?path=%2F&preview=Peter+Wharton+Part+2+audio.MP3&qsid=39281849731538282739464284144902&query=peter+wharton&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D
Copyright: LEO Computers Society
Restrictions: None known

❖ **Interviewee: Paul Dixon** **DOB:** September 29th 1928

Interviewer: Mike Storey
Date of Interview: 4th April 2016, Transcribed 2nd February 2017
Joined LEO 1955
Role in LEO: Programmer, Consultant

Abstract: Paul Dixon, a refugee from Czechoslovakia (Prague) in 1947, graduated from Manchester University with an honours degree in Economics and Politics. Intrigued by an advertisement for programmers, applied, was interviewed by Peter Hermon and joined LEO Computers as a programmer. Although only with LEO for two years had a rapid rise ranging over a range of applications. Joined Roger Coleman at LEO II customer Ilford's. Emigrated to Canada and later the USA for a career in computing, including very senior, and prominent positions with major companies.

Repository: Edited Transcript in Dropbox:
https://www.dropbox.com/home/LEO%20Oral%20History%20project/LEOSoc%20Oral%20History%20file%20uploads?preview=PAUL+DIXON+edited+P2.docx
Copyright: LEO Computers Society
Restrictions: None Known

❖ **Interviewee: Michael Mills** **DOB: 1935**

Interviewer: David Phillips
Date of Interview: 7th February 2017
Joined LEO: 1958
Role in LEO: Maintenance Engineer LEO II

Abstract: A lively, chatty interview full of personal anecdotes relating to his life and work experiences. Concentrated on Maths at School and awarded scholarship to Cambridge. But opted to do National Service in Royal Signals, for two years, rising to rank of Lance Corporal. Opted for a degree in Physics at University of Birmingham, graduating with II/1. Saw LEO advert for engineers, taken on at Minerva Road and after training school became maintenance engineer on a range of LEO/IIs. Spent 3 years with LEO, then joined Honeywell as manager of software development. Subsequent career with Rank Xerox in marketing, as consultant with CACI, then working with James Martin and after a spell in Australia (1997), set up as independent consultant before retirement.

Transcribed: February 2017
Edited March 2017
Repository: Dropbox
https://www.dropbox.com/search/personal?path=%2F&preview=Michael+Mills+edited+P2.doc&qsid=62766657683312337088935222380943&query=michael+mills&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D
Copyright: LEO Computers Society
Restrictions: None known

❖ **Interviewee: Patrick Blakes** **DOB: 1938**

Interviewer: Cyril Platman
Date of Interview: 27th July 2016
Joined LEO: 1958
Role in LEO: Commissioning and Maintenance Engineer LEO I and LEO III

Abstract: Received background training in Electronics doing his National Service in the Royal Air Force. Decided on career in that field after seeing an advert for trainee engineers from LEO. After training worked first as commissioning engineer on LEO II/7 than became site maintenance enginner on LEO II and LEO III sites including acting as chief engineer on Ilford's LEO III.. Retired from ICL in 1969 to join an independent computer maintenance company working on LEO machines.

Edited Transcript:
https://www.dropbox.com/search/personal?path=%2F&preview=Patrick+Blakes+edited+P2.doc&qsid=6666077920143715622704828136752O&query=patrick+blakes&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D
Copyright: LEO Computers Society
Restrictions: None known

❖ **Interviewee: Ian White** **DOB: 19th November 1930**

Interviewer: Mike Hally
Date of Interview: 6th December 2016
Transcribed: 27th December 2016
Editor: Bob Marsh received copy for editing 5th January 2017
Joined LEO: Summer 1955
Role in LEO: Design Engineer on LEO II

Abstract: Studies Natural Sciences at St Andrews, specially interested in Electronics. Commissioned in REME and posted to teach at Shrivenham, On discharge interviewed by Pinkerton and joined LEO engineering team in Olaf Street. Left LEO for a career in electronic control devices, but retained an interest in LEO. Joined LEO Computers Society and started collecting LEO memorabilia

Edited Transcript:
https://www.dropbox.com/search/personal?path=%2F&preview=Ian+White+edited+P2.doc&qsid=07044367727534149534144072593442&query=ian+white&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D
Copyright: LEO Computers Society
Restrictions: None known

❖ **Interviewee: Tony Earnshaw** **DOB: 8th November 1935**

Interviewer: David Phillips
Joined LEO: Not clear. Worked on LEO III/6 Shell-Mex and BP in 1965 as part of site engineering team
Role in LEO: Maintenance Engineer
Date of Interview: 16th February 2017
Transcribed: 19th February 2017
Editor: David Phillips is undertaking a first edit of the transcript of a very confusing and chronologically muddled interview. Tony Earnshaw will be asked to re-edit the revised script.

Abstract: Worked as untrained TV repair man in 1950s, Spotted by passing LEO engineer, invited to apply to LEO. Started work as assistant to site engineers on the Shell-Mex and BP LEO III in Hemel Hampstead. Prides himself on his successful career as an engineer without having acquired any qualifications. Rose to be chief site engineer at Minerva Road responsible for seven sites. Left ICL to become independent engineer,

Transcript: first edit by David Phillips at
https://www.dropbox.com/search/personal?path=%2F&preview=Tony+Earnshaw+unedited.docx&qsid=2181624881271318425107235966608 7&query=tony+earnshaw&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D

Copyright: LEO Computers Society

Restrictions: None known

❖ **Interviewee: Peter Hermon** **DOB: November 1928**

Interviewer: Neville Lyons
Joined LEO: September 1955
Role in LEO: Programmer, Consultant
Date of Interview: 15th June 2017
Transcribed: 28th June 2017
Editor: Bob Marsh. Edited version to Dropbox 7th July 2017

Abstract: Peter Hermon joined LEO after he obtained first class honours from St. John's Oxford, and seeing an advertisement for a mathematician from J. Lyons. He was one of the most brilliant LEO recruits and quickly made his mark as a programmer and consultant. He was involved in a number of LEO sales, working first with Wills Tobacco and later with Dunlop Rubber. He joined Dunlop to first run their LEO installation, but subsequently rose to head Dunlop Management Services world-wide. He moved to BOAC where he was responsible for the development of BOADICEA the airline reservation system which became a major UK success story and later became a Director of British Airways. After retirement in 1989 he became an active member of the LEO Foundation, acting as its treasurer. Peter's other interests were walking in North Wales and he has published a number of guides for walking in Wales.

Location of Transcript:
https://www.dropbox.com/search/personal?path=%2F&preview=Peter+Hermon+edited+P2.doc&qsid=96985580077109303538682721508938&query=peter+hermon&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D
Copyright: LEO Computers Society
Restrictions: None known

Interviewee: Peter Byford **DOB:** 1944
Editor: Frank Land, May 2018
Abstract: Peter had a long career in computing starting when he left Grammar School aged just 17 and following an advertisement applied to LEO Computers Limited. Passing the aptitude test as the sole non-graduate applicant at that time, he was trained as a programmer to work on the LEOIII/1 Hartree Service Bureau. He worked on a number of applications, rising in seniority, but left LEO in 1965 to join the AA as a programmer and data analyst. His subsequent career, primarily in Data Management included a 27 year stint at Eastern Gas, followed by the software contractor and consultant John Hoskins, and later as an independent contractor/consultant. Despite his relatively short stint at LEO at the beginning of his career, it is to his LEO roots he returned on retirement. After attending an early LEO reunion he took over the chair of the LEO Computers Society, and oversaw its growth to over 800 members (May 2018), and continues to fill that role with undiminished enthusiasm.

Interviewee: Geoff Pye **DOB:** 1932
Interviewer: Paul Bygrave
Date of Interview: 3rd August, 2017
Editor: Frank Land
Joined LEO: 1956

Abstract Geoff Pye was brought up in near Ilford, East London, took a degree in Geography at Kings College, University of London, and after 2 years National Service, looked to start a career as a Management Trainee. Applying to Lyons amongst other companies he was diverted to the fledgling LEO organisation, Interviewed by Ted Rowley and David Caminer he was impressed took the aptitude test and was offered a job as a programming trainee under the tutelage of Leo Fantl. After a period rising in the programming/system ranks, including secondment to the MPNI LEO II/6 in Newcastle changed tack to running computer operations taking charge of first of the London LEO service bureaux and subsequently the EELM and ICL bureau operations. Following a brief interlude working for consultants John Hoskyns returned to ICL as a[i] senior manager for BARIC the joint service bureau company set up by ICL and Barclays Bank. As batch services were sold off to be replaced by INS - the ICL network services company Geoff took up the reigns. More senior jobs in operations followed before retirement age 60.

If any reader knows of any other reference please let Frank Land know at f.land@lse.ac.uk

Archive:https://www.dropbox.com/s/3khrrmoj1cn7njr/Geoff%20Pye%20edited%20P2.docx? dl=0
Copyright: LEO Computers Society
Restrictions: None known

Interviewee: Brian Mills **DOB: 1933**
Interviewer: David Phillips
Date of Interview:
Editor: Frank Land, September 2018
Joined LEO: July 8th 1957

The following entries are to be completed:

Interviewee: John Page **DOB:** 1944
Interviewer: Dag Spicer
Date of Interview: April 11th 2017
Joined LEO: 1958?
Role in LEO: Joined as apprentice engineer in Minerva Road, became commissioning engineer, and chief commissioning engineer on a number of LEO IIIs
Left LEO: Made redundant after formation of ICL

Interviewee: Ian Bruce **DOB:** 1947
Interviewer: Mike Hally
Role in LEO
Date of Interview: 5th July 2017

Interviewee: Ninian Eadie **DOB: 15.3.**1937
Interviewer: John Ferguson
Date of Interview: 6th October 2017
Joined LEO: January 1961
Role in LEO:

Interviewee: Ninian Eadie (2)
Interviewer: Archives IT
Repository: http://archivesit.org.uk/interviews/ninian-eadie/

Interviewee: Jean Elliott **DOB:**
Interviewer: Elisabetta Mori
Joined LEO: Probably 1948/49 having been a Lyons clerk
Role in LEO: Clerical assistant to John Pinkerton

Abstract: One of the earliest to join the LEO team as a clerical assistant involved in a variety of tasks such as filing and note taking for the design team comprising John Pinkerton, Ray Shaw Ernest Kaye and Ernest Lenaerts. Even permitted to do some soldering. Always remembers with great fondness working with LEO

Transcript of Interview:
https://www.dropbox.com/search/personal?path=%2F&preview=Jean+Elliott+unedited.docx&qsid=94325109919715945022265514106538&query=jean+elliott&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D
Copyright: LEO Computers Society
Restrictions: None known

Interviewee: Mike Gifford **DOB:** 1936
Interviewer: Dag Spicer

Date of Interview: 30th September 2017
Editors: Bob Marsh (P1) and Frank Land (p2) Nov 2017
Joined LEO: 1959 or 1960
Role in LEO: Started as temporary assistant at Minerva Road, the trained as consultant at Hartree House and rose rapidly working as consultant in a variety of locations including the Midlands, North West London ICL region. Finishing work with ICL as Chief Executive of ICL Australia for two and a half years, before leaving computer industry.
Left LEO/ICL: 1975

Interviewee: Barry Fox **DOB:** 1935
Interviewer: John Daines
Date of Interview: 19th July 2017

Interviewee: Margaret Fox (James when she joined LEO)
Interviewer: John Daines
Date of interview: 19th July 2017
Editor: Hilary Caminer

Interviewee: Michael Jackson
Interviewer: Elisabetta Mori
Date of interview: 25th July 2018

Interviewee: Brian Mills **D.O.B:** 1933
Interviewer: David Philips
Date of Interview: 27.02.2018
Editor: Frank Land
Archive: Dr Archive

Interviewee: Alan Jacobs **D.O.B.** 16.06.1931
Interviewer: David Phillips
Date of Interview: 17.10.2018
Editor: Frank Land
Joined LEO: 1957

Abstract: Alan, born in Stoke, took a degree in History at St John's, Oxford, commencing in 1950, after National Service in the RAF and tried a number of jobs as management trainee, but was not inspired by them. Tempted by LEO advert and after interview was invited to join as programmer. Involved with a succession of service jobs rising in seniority. Despite his admiration and like of working at LEO decided to further his career by leaving LEO, first for BEA and then other organisations none of which had the sense of knowing what they were doing he had found at LEO. When the opportunity came in 1962 he re-joined BAOC to join the team being built by Peter Hermon to develop a comprehensive Airline Reservation System. Alan headed a team developing ground-breaking Airline Departure system. Alan left British Airways and was recruited by Sainsbury's as their Director of IT helping to transform the business. After Sainsbury's Alan retired
Restrictions: None known
Archive: https://www.dropbox.com/s/32q9ll62urvr0k9/Alan%20Jacobs%20edited%20P2.rtf?dl=0

Interviewee: Peter Wharton
Interviewer:
Date of Interview:

Pending Oral Histories

Tony Denton
Interviewer: John Paschoud

Dave Rocke
Interviewer: John Daines

Vince Bodworth
Interviewer: Peter Byford

WEJ Parry
Interviewer: Jean Elliott

John Godwin
Interviewer: Bernard Behr via Skype to South Africa

Norman Witkin
Interviewer: Bernard Behr via Skype to South Africa

Leonard Letton
Interviewer: Mike Hally

Georgina Ferry Transcripts:

Georgina Ferry has donated the unedited transcripts of the people she interviewed for her book A Computer called LEO to the Heritage Project of the LEO Computers Society. The following interviewees are included:
Anthony Salmon, Maurice Wilkes, David Wheeler, Murray Laver, David Caminer, John Pinkerton, Ernest Kaye, Ray Shaw, Derek Hemy, Peter Hermon, John Aris, Mary Coombs, Ralph Land, Frank Land (incomplete first half of transcript lost)

OTHER MEMOIRS, REMINISCENCES AND COMMENTS

- **Maurice Bonney:** **DOB:** 1932

Abstract: Maurice Bonney was a mathematician who had early experience of working with LEO as head of a group of programmers involved with aerodynamic calculations for missile technology working in the British aircraft industry, and using LEO as a bureau facility. Later in his career he worked for Renold Chains on their LEO III as chief programmer. He subsequently joined academia In Operations Management finishing his academic career as Professor of Operations Management. He spent much of his academic career working on Computer Aided Design producing significant innovative research.

He has written a substantial memoir about his career including his LEO experiences. The memoir, still undergoing revisions, is stored in the LEO Dropbox archive,
https://www.dropbox.com/search/personal?path=%2F&preview=Maurice+Bonney+memoir.doc&qsid=538144899830965731992425434715 38&query=maurice+bonney&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D

- **Graham Briscoe** LEO III , IBM 360 and Phoenix Insurance

The Phoenix LEO III/33 to IBM 360 systems conversion took place in 1973 and this computer files conversion work was above my pay grade then...I was supporting Phoenix Corporate Services Department design the process and procedures (as an Organisation & Methods Analyst) for the relocation of their Administrative Head Office in King William Street across from the Bank of England (the original Phoenix Clock and a giant stone phoenix is still above the entrance hall / door of a Japanese bank (Dawia ?) to Bristol.
During my own research on an Institute of Administrative Management 1960s computer training package I came across Peter Bird - who was, at that time, researching his own Lyons history book. I met him in Reading and we swopped a few stories - particularly the Phoenix Assurance conversion from a tape input LEO III to an IBM 360 (I understand that the Phoenix 360 was the only 360 with paper tape input !), and the impact of the Bristol National Data Processing Service (NDPS) of the GPO to whom Phoenix had outsourced one of its two LEO machines work load during the conversion and whose staff then went on strike, and on the second strike staff blacked all external work as well. Phoenix Data Processing management hired a furniture van - and with the help of a set of keys supplied by NDPS management -

stole back our complete set of master tapes. Some were then sent to an eastern Europe organisation (?) with a LEO to print off our monthly renewals - otherwise Phoenix could have lost the insurance renewal business !! I also recall talk of sending some tapes to Australia (?). Finally - some parts of the last planned six months of the LEO tape conversion project were squashed into two weeks - in order to get the Phoenix General and Life / Pensions renewal production and printing facility up and running in Bristol.
https://www.dropbox.com/s/qrjgnwhk39hgtlt/Graham%20Briscoe%20memoir.doc?dl=0

See also obituary of John Denys Neale above.

- **Tom Brooks** Joined LEO as a programmer in 1963 as his first job after graduating. After learning Intercode and later CLEO became working with Renold Chains and subsequently on a number of Post Office applications. After his days working with LEO became involved with the Marconi Myriad. His more extensive reminiscences are archived in LEO Computers Dropbox account at: https://www.dropbox.com/preview/LEO%20Oral%20History%20project/LEO%20Memoirs%2C%20Reminiscences%20and%20Anecdotes/Tom%20Brooks%20memoir.docx?role=personal or can be obtained from Frank Land at f.land@lse.ac.uk

- **Linda M Chapman (nee Robertson**l "I worked in Hartree House as a junior programmer between 1963 and 1965. I have memories of the excellent training and supervision which far exceeded anything else which I came across in my 30 years as a programmer"

- **Alistair Cochrane** – LEO II I was an operator for several years on the Leo machine at Stewarts and Lloyds in Corby. Attached is a piece I wrote some years ago for the local heritage centre regarding the running of the weekly payroll for the steel works and tube works on the Corby site. See Dropbox
https://www.dropbox.com/s/31snysnmb3qg08k/Alistair%20Cochrane%20Memoir.docx?dl=0

- **Anthony Robin Davies.** I appreciate how your work must start with LEO1, but as one of later development engineers (I was #24) I should like to see the whole story recorded, right through to the end. Effectively this was on 16 December 1968, when all development work at Minerva Road was stopped and all of us had to either transfer to other ICL locations or be made redundant. At the time the I/O control logic of the System 4/60 (nicknamed LEO 4 at the lab, and with architecture by me) was working and Maurice Blackburn's ALU was not far behind. Finishing it would have given ICL a machine that could really compete with IBM's System 3/60, rather than their feeble copy (the ICL 1900) of an antique Hewlett Johnson design. By then Maurice and I were wrestling with the interconnection problems of the "fail-soft multiprocessor" which was to become the System 4/65, 4/45 and 4/35, all of which contained aspects of LEO design thinking. And then there was the amazing sequel, when the extra III/F machines, chunks of which had been earlier redesigned by Tony Williams and myself for speed reasons, were produced for the GPO. In between there was a string of patents and innovations, including microprogramming using ROM, plug-in variable storage speeds, 8-way multiprogramming, designing to the GPO work unit, novel and complex machine instructions like "merge, condense and sort", and CLEO (much of which resurfaced in the design of IBM's PL/1). I imagine few people, when they plug a memory upgrade into the motherboard of their PC, know that the original concept, documented by Maurice and myself as co-inventors, was patented by ICL. Plus the breath-taking systems availability figure of over 99% for LEO III (contemporaneous machines from IBM only achieved 95%: IBM never disclosed this kind of figure but somewhere in my 25 years of employment with them I learned it). On both the technical and social side it was a fabulous place to work: very friendly, supportive, empathetically managed, and without any visible sign of a rat-race. We were breaking new ground time and time again with the result that at the end I found that I had become the youngest Senior Principal Engineer in the history of ICL by a clear 4 years. Amazed! As a result ICL offered me the design of the I/O of the 1908A or Chief Engineer of the 1901B, the Basic Language Machine, also known as "Project 52". (Actually it was more complex than that: "Project 52" was a dust-sheet under which ICT/ICL's latest bright idea was placed and changed from time to time, and used as a deice to attract Government subsidies).
There is so much to learn from the latter days at LEO and I hope you will be able to cover some of it later in your project, before it is lost forever.
https://www.dropbox.com/s/0s4nweb17m4zqwm/Anthony%20Robin%20Davies%20memoir.doc?dl=0

- **John Edwards** Reminiscence after attending Neville Lyons Lecture

I worked only briefly for Lyons doing Time and Motion Study at Cadby Hall. It was in fact an interim job as I resumed my degree work at London University. I was making the most of a grant to study after wartime service as a navigating officer in the Merchant Navy. I got to know most of the departments at Cadby Hall, including T&M on the swiss roll line that you mentioned. I also did some studies at the Coventry Street Corner House. This was to determine the average time spent in the Brasserie ; this was done by simply counting the numbers going in, and those coming out , over a period of time . I remember a somewhat hilarious moment in the ice cream factory when a stainless steel overhead pipe carrying the liquid ingredients became disconnected and poured a fair amount over the foreman.

The overall impression I had of operations at Cadby Hall was great efficiency. The main point of the T&M work was to get control , by knowing the man- hours required to produce the various items. I think that efficiency was the main driving force behind Leo , was it not ? I did not have any direct connection with Leo, I was told that there were some people from Birmingham University working on it. I have always tried to impress on people the remarkable achievement of the first commercial computer being developed by a food company, and by the lead that this should have given the UK in that science. I feel that Lyons should have persisted in being in the computer business and given government support. I know from personal experience how little support was given to new technology. In 1971 I had a small electronics company , in that year Intel produced the first microprocessor (the 4004) we used this to produce the first desktop computer in the same year. Unfortunately in spite of getting orders from UK and abroad, and being used in commerce , lack of adequate finance killed it off.
https://www.dropbox.com/s/tjlxl5xtiyd8p0d/John%20Edwards%20Reminiscence.docx?dl=0

- **Professor Stephen Evans** I was interviewed by John Pinkerton prior to my graduating from Keele University in 1966. I was offered by Dr Pinkerton, sponsorship to do a PhD in any subject in any University that I wished (it's possible I still have that letter but can't put my hand on it now). I didn't want to do a PhD then, as I had had 3 years in the sixth from at school (I did my A levels at age 16), followed by going to Keele for 4 years and having a scholarship to go to Swarthmore College, Pennsylvania for a year, so I had already had 6 years in academia post my A levels- I wanted a job. I started work the week after graduating from Keele in the Research Division at Minerva Road. English Electric-Leo had just had "Marconi" added to the name and I worked for John Winterbottom on speech recognition and visual display design. With Ann Cropper I published a paper in 1968 on "Ergonomics of Computer Display Design This seems to have gone on being cited up to last year.
[https://scholar.google.co.uk/scholar?cluster=3718501728846242519&hl=en&as_sdt=2005&sciodt=0,5&as_ylo=2014]

  I don't know whether some reminisces of working at Minerva Road in the Research Division would be of interest- it was obviously post Leo, though I did learn CLEO and Intercode. I left EELM to go to CERN in 1968, and worked as a programmer there for Carlo Rubbia, subsequently a Nobel Laureate.

  I changed the focus of my career several times and I am now semi-retired and paid to work 1 day per week at The London School of Hygiene & Tropical Medicine.

  I recall various people from 1966-68 in addition to Pinkerton and Winterbottom. Ernest Lenaerts was around Minerva Road then; I did meet you very briefly and various other luminaries of the time but I'm sure you won't remember me. Ann Cropper and I were involved in the start of the British Computer Society "Display group", and our paper was based on a talk I gave in one of the early meetings of that group.

- **Bill Forfar** **Reminiscences 2011**
Text:https://www.dropbox.com/history/LEO%20Oral%20History%20project/LEO%20Memoirs%2C%20Reminiscences%20and%20Anecdotes/Bill%20Forwar%20memoir.docx?_subject_uid=47902250&preview=Bill+Forwar+memoir.docx
It all started when Wendy Craig woke me up with "A Cup of Tea and Lyons Tea Shops" ……
I was dozing on the settee when I became aware of LEO on the screen and Wendy Craig uttering the words Lyons Electronic Office.
Acronyms, acronyms … they are a part of everyday life and the acronym LEO reminded me that in 1963 I chanced into the world of computing when my first job was as a Computer Operator for Shell Mex and BP on their new LEO 326 machines in Hemel Hempstead. What an introduction, right at the cutting edge of the brave new world! 1024 words of 40 bit memory, made up of a matrix of magnetic rings each threaded

on three wires which made it look rather like a thread-bare tapestry on a plastic frame about 12 inches square. You could SEE the bits in each WORD.

Sept 63…… Love, love me do

A wonderfully air-conditioned room with two LEO 326's: each with 8 tape decks, 2 paper tape readers, a paper tape punch, card reader, card punch, two printers, main console and Engineer's Control panel. The place was jammed by trolleys filled with the input for the jobs - mag tapes to read, some work tapes for the sorts, mag tapes for output into the next job and paper tape with daily sales tickets to be read by the Elliott Readers. This tape was punched from the handwritten dockets sent from the depots where the road tankers filled up with diesel or petrol.

I remember we had one operator on Mag Tapes, one on Peripherals, one on Buttons.

The cry rang out - "Allocate mag tape on Channel 2 Route 2: Printer on 6/1: Paper Tape output on 7/1"

The job started and the P/T began to fly through the reader into a large metal bin. Mag tapes inched forward, reports printed out, reel after reel of P/T filled the bin. Don't lose the end – it's all got to be rewound in case the job fails or the tape needs to be dibbed.

The jobs failed sometimes due to mis-punches in the P/T so out with the dibber and the black-tape to re-punch a character or two. One day a reel stopped repeatedly just after a splice point, the data prep girls had joined two reels together. However the second tape had been turned over and joined upside down to the first one. The sprocket holes seemed to match but the 2-track side had been joined to the 3-track side and carefully trimmed to make a neat splice so it looked like the 5-track tape was supposed to look.

Another day came the words – "I bet you can't hit the big red EMERGENCY STOP on the Engineer's panel from here with that reel of black and sticky"…. Zooom……Ooops……. Silence except for "You've won the prize, Jim!" Then the problem was how to doctor the console log to cover up the re-run time.

July 64…. Please, please me

The task now was to learn Assembler, then CLEO for writing programmes. Wow, a step up the employment ladder. The DSR – Dealer Site Record -with filling station information covering the number of pumps, A-road or B-road, car dealership, gallonage for the storage tanks, throughput per week, location and so on. Did you know there are even waterside filling stations for barges? Then began my introduction to a look-up table to check the map reference was correct for the site. It was planned to use this to work out the best road route for the tanker from the depot to each filling station and back to the depot – this was leading edge use of computers and might save money. The edge of the whole country was set up in map references so garage could be mistakenly put in the sea somewhere! In fact this routing idea was too heavy on computing calculation and, anyway, the tanker drivers were the experts on minimising the road miles. Development deferred!

Oh, the elapsed time it took to get a compilation and test of the programme back from the machine! One turn round every three days only to find there was a simple coding error. There were too many programmers, too many mistakes and too much operational work for the hours in the day. But the LEOs proved their worth and SMBP's profitability rose.

Sep 65 … What's new Pussycat?

I bade farewell to Hemel and enrolled on the Computer Science degree at Hatfield, which had 2 periods of 6 months working in a business during the 4-year course. But now the computer (I hesitate to use the word) was an Elliott 803B, all paper tape and not a mag tape to be seen. However it did have long-life plasticised paper tape from which to load the operating system! Output had to be via paper tape and then printed via a Teletype. Still I learned a lot. At the start of year 2 it was back to Hemel for 6 months commercial experience working on another programme. All acronyms were related to the sales and delivery world of the oil industry in the UK. Then other languages, FORTRAN, COBOL, Algol and more needed to be mastered.

Mar 1968 ….. Come on baby light my fire…..

…..I spent time somewhere else…. NO, not at Her Majesty's Pleasure!

Aug 1969 ….. Zebedee time

EELM had lost the sales battle to Univac at the Shell site. The machines had changed to become Univac 1100's with the FASTRAND storage device holding an infinite amount of information so you wouldn't need to store information on mag tapes anymore….. wait a moment, what was that saying about systems expanding to fill the available storage? We were soon back using mag tapes and there were too many

programmers developing too many programmes and too many operational programmes to run in the available time.
What goes round comes around, things don't really change do they…..? Which brings me in a roundabout way to the time I witnessed Real Magic. The office block had a magnificent view of the junction where six roads met. A scaffold tower went up in the middle, six large white blobs appeared at the end of each road and many concentric circles were drawn. At five minutes to four o'clock the High Priest climbed the Tower holding a megaphone. Work stopped and our windows were crowded with baffled observers. His yellow-jacketed assistants hovered on the kerbs and at precisely 4pm they leapt into action to make a Magic Roundabout. Two lanes each way and six mini-roundabouts later it soon slowed the traffic to a crawl but after a few days the locals became accustomed to it and they zoomed round. In at road 1 go left to road 2 or 3, it's quicker to go right to 5 and 6, but which way to road 4? … **end of my SMBP involvement**….

- **John Godwin** : LEO Programmer Johannesburg:
Worked in the Johannesburg Bureau from 1964 until 1986 when I moved to the then holding company. Originally we were part of the Rand Mines Group of companies. The mining houses were our main customers for whom we ran payrolls, stores and share transfers. For full reminiscences see https://www.dropbox.com/preview/LEO%20Oral%20History%20project/LEO%20Memoirs%2C%20Reminiscences%20and%20Anecdotes/John%20Godwin%20brief%20bio.doc?role=personal

- **John Goodwin** I worked on LEO II/4 for the Ford Motor company, & I'm the sole entry in your list of addressees that did genuinely work on that machine; one of the two others worked on II/11, & the other worked for LEO on II/8?, & joined Ford after II/4 had been scrapped.

  I notice that you have an error regarding the attribution of II/6. The Government Pensions activity never had their own machine, having used one of other of the LEO-owned machines that operated as a service bureau. *(Editors note: Goodwin's assertion cannot be sustained as a number of LEO Computers Society members including commissioning engineers tell of visiting the LEO II/6 at the Ministry of Pensions offices in Newcastle. Geoff Pye - see Oral History gives an account of working on MPNI LEO I/6 in Newcastle)*

  When I went on my programming course at Whiteley's , we were presented with a list that detailed the owners & locations of the LEO computers; that list omitted II/6, & in response to our enquiries about that, an evasive reply advised us that the presenter was not able to disclose that (so of course we all knew where the machine had been deployed). That machine was actually purchased by another Government activity - the Foreign Office, for one of their activities whose existence was never disclosed; that machine was actually located at Cheltenham, & certain of our engineers were required to work on that machine as required. I never heard of the fate of that machine, but I expect that it was simply scrapped - like all the others & no mention if it is included in any information published by Bletchley Park (it took over the work of the 11 Colossus machines). (Perhaps it's still there?)

  It was quite amazing just how much work those machines could achieve, even using punched-card for input & output of master files (some using pure binary), supported by a room full of ancillary punched-card appliances (sorters, collators, punches & interpreters + an IBM 407 tabulating machine - that I programmed using huge re-wirable plug-boards! Modern machines seem to be no more efficient, due to the increased bit usage plus masses of bloatware, & general incompetence of system designers & programmers. Our programmes were coded to run using pure-binary code, but the compiler would accept decimal input & convert to binary for execution, but I had to decode the binary & perform modifications by 'patching' in binary.

  I worked on our LEO until it was replaced by an IBM 1410 in November 1963, & I supported & worked on a series of other machines until 2000 C.E. when I accepted early retirement, but continued working as a consultant - even to the present day. Our replacement machine was eventually replaced by a Honeywell 2200 + a 120, in a dishonest attempt to gain the company's business by a bunch of fraudsters, since the machines were rip-off's of the IBM 1410/7010 &c., & the software merely stolen directly; compiling a programme in Cobol, resulted in a fatal error unless the computer used was declared to be an IBM 1410 or 7010; that machine got thrown-out prior to launch, when it was found that it was not up to the claimed performance, & would take 28 hours per day to run the existing workload then currently performed on the IBM 1410; we replaced the IBM 1410 with an IBM 360-50, running in IBM 7010 emulation mode; I wrote the Post Mortem programme for it!, & spent many week-ends running both new & old machines concurrently 24 hours per day, unassisted & unaccompanied, to develop new programmes for our entire Accounting systems; people would have a fit nowadays, if anyone attempted that! The above account is archived in Dropbox at
  https://www.dropbox.com/preview/LEO%20Oral%20History%20project/LEO%20Memoirs%2C%20Reminiscences%20and%20Anecdotes/John%20Goodwin%20reminiscences.docx?role=personal

- **Emil Gottwald.** I joined LEO Computers in 1964 after graduating from Queen Mary College in London with a degree in physics. It was right in the middle of the boom in semiconductors, and even though I had

specialised in solid state physics the prospect of working with semiconductors did not appeal to me, so I interviewed with LEO Computers and accepted their job offer.

I was part of a small group [I think there were 6 or 7 of us**] working on "special projects" for JW [whose nickname BTW was 'Fred']. We had a small lab which housed a "research" computer consisting of components mounted on pegboard hung on the wall, and fed by paper tape. We worked on a variety of projects ranging from voice recognition [prompted by IBM's 'Shoebox' voice recognition device], to thermal printing and performance analysis. This was during the time of the LEO III/F, and we built a prototype performance analyzer for it consisting of a bunch of photocells mounted on the control panel, driving a paper tape punch to record which cells had detected a control panel light. It was a Rube Goldberg affair using rubber doorstops for the photocell mounts [the screw holes were used to fit over the console display lights at one end, and to house the photocells at the other - cheap and effective]. Don't know how that turned out as I left for the States around then. I remember JW blowing his top when he found out I was leaving, calling me into his office and reaming me out for not giving more notice. A more pleasant memory of JW has to do with his mantra to keep things simple. He once asked me to name a simple, reliable mechanism and I said "A car engine'. His reply was "How about a matchbox?

My time at Minerva Road is one of my fondest memories - I still have my CLEO and KDF9 Algol User Manuals and I seem to remember an AutoCoder manual lying around somewhere though I don't remember if that was from my LEO days or from college.

Valerie Grose I had the somewhat dubious distinction of being the first girl in London to complete the Gold level of the Duke of Edinburgh's Scheme (only because I was in the first intake of girls to start when it was introduced). On the photograph I am showing Mr & Mrs Simmons the work two younger girls are engrossed in leading to the Bronze stage. It was divided into four sections: Service to the community, Adventure, Hobbies and practical skills. Under hobbies I spotted driving a car and asked my manager what that entailed as few had a car at the time. Please laugh (or not) but a man was paid to take me out on Saturday mornings, in a company car, to teach me. No matter how long it took: the objective being for me to pass the test. I made my way to Cadby Hall to meet George, plus car, and then I drove to my home in Ealing where my mother had coffee and buns ready for us. George had a cigarette and after chatter together I drove back to CH. We spun it out for about six months and I then passed. Although I went to work everyday with only two weeks holiday, that company was pretty good to me. What a privilege to have had my office (when eventually promoted to senior secretary) opposite that of Mr Simmons with TRT's alongside. Mr Pinkerton and Mr Caminer had offices elsewhere but were frequently seen heading to Mr Simmons' office. One day Diane (a colleague) and I were called upon to serve tea in his oak panelled office to a group of a dozen or so gentlemen. I was going on holiday next day (he must have been told that by someone). He stopped the meeting, excuse me gentlemen, Valerie I understand you are going on holiday tomorrow. May I ask where to if you are going away. The Isle of Wight with my parents. He then wished me a pleasant time. My completion of the Award took me to the office of Sir Samuel Salmon who presented me with "The Ascent of Everest". I still have it on my bookshelf. I met Sir John Hunt and when four more girls completed the Gold level we were invited for lunch at the House of Commons with the MP for Hammersmith, Mr Compton Carr. So....I never was a "LEO" but had that close association with the key players. I have spoken to one or two people at the reunions who were LEOs but who never met the "gentlemen". I feel very fortunate. KR Valerie I know so many widows, I feel I am now a member of "that" Society. Had Tony have lived, his onward journey would not have been pleasant (wheelchair and incontinent) so I have to come to terms with the outcome being, for him, the kindest thing.

My file was on the table with lots of other items/memorabilia. I removed a couple items that I can always return. I must say, in all honesty, at the time I had no idea of the role of Mr Simmons. Like several other "pinstripe-suited" gentleman he was just a very senior manager to whom we younger employees showed great respect. He was the Comptroller but what exactly that was we knew not: just the head of the clerical workings of J Lyons, in the same way that schools have a headmaster (or mistress). I'm not entirely sure I had awareness of his LEO importance/connection. When Messrs Caminer, Pinkerton and Thompson dashed along the corridor heading to room 23 (Mr Simmons office) I suppose we thought it was the weekly audience, such as the Prime Minister has with Her Majesty the Queen. I was once, with another staff member, called upon to serve tea to various managers in his office. Whilst we poured then delivered to each person, they carried on talking but Mr Simmons said, "excuse me a moment, gentlemen": Valerie I believe you are going on holiday tomorrow, are you going away? With my parents we were heading to the Isle of Wight. He wished me a very nice time. His secretary, Miss Margery Slack

went to Tangier. We lesser mortals thought she was on some other planet: way out of our reach. Tony was with British Airways and we returned from Washington on Concorde. Never as a young girl could I have imagined such arrangements. Neither could I have imagined being part of these LEO gatherings in such a grandiose building as Middle Temple Hall. I don't have photos that Mr Simmons took: just one with me explaining the Duke of Edinburgh's award to he and Mrs Simmons. Another manager, Mavis Leopold was the wife of Michael, nephew of Reginald Leopold who conducted the Sunday evening Palm Court orchestra programme. A Mrs Greenall, personnel manager and Miss Buzzey, secretary to the Chief Accountant, together with Mrs Simmons all had manicures, regular hair appointments, bags and shoes like Footaballers' wives have nowadays (Several thousand per item: equivalent in those days). Something we younger ones could only admire and dream of. It all seems like another world but of course is the memory of the early days of my life. The Lyons whole operation was very labour-extensive. Would Mr Simmons nowadays have no need of his secretary and just communicate on his mobile and iPad? Maybe the wages and salaries to so many thousands of staff (9000 at Cadby Hall, I recall) perhaps be part of the downfall of the company? Thankfully the organisation of the time enabled me to have an interesting and fulfilling career. I feel very fortunate.

- **Douglas Hartree and LEO** (from Wikipedia https://en.wikipedia.org/wiki/Douglas_Hartree)
  Hartree's fourth and final major contribution to British computing started in early 1947 when the catering firm of J. Lyons & Co. in London heard of the ENIAC and sent a small team in the summer of that year to study what was happening in the USA, because they felt that these new computers might be of assistance in the huge amount of administrative and accounting work which the firm had to do. The team met with Col. Herman Goldstine at the Institute for Advanced Study in Princeton who wrote to Hartree telling him of their search. As soon as he received this letter, Hartree wrote and invited representatives of Lyons to come to Cambridge for a meeting with him and Wilkes. This led to the development of a commercial version of EDSAC developed by Lyons, called LEO, the first computer used for commercial business applications. After Hartree's death, the headquarters of LEO Computers was renamed Hartree House. This illustrates the extent to which Lyons felt that Hartree had contributed to their new venture.

  Hartree's last famous contribution to computing was an estimate in 1950 of the potential demand for computers, which was much lower than turned out to be the case: "We have a computer here in Cambridge, one in Manchester and one at the [NPL]. I suppose there ought to be one in Scotland, but that's about all." Such underestimates of the number of computers that would be required were common at the time!
- **Denis Hitchens.** Operator on LEO III/15 at Shell Australia

  Neil Lamming interviewed me and conducted the aptitude test. But the person I was really trying to dredge from my memory was Bill Cheek who along with Jack Dankert encouraged me to return to full-time study. I was 19 and 20 at the time, turning 21 about a fortnight before I went to RMIT -- imagine a 20 year old shift leader with the fate of SCO in his hands!! So for me as a whippersnapper training 35+ year olds was a life defining experience and one which a bit later in life when I was President of the Students' Representative Council (elected leader of some 12,000students) I was able to refer to when addressing Melbourne Rotary (yes, all the big wigs). A fuller version of the reminiscences are available in the LEO Dropbox archive at
  https://www.dropbox.com/s/bqgrbhxh9cp4s4k/Denis%20Hitchens%20Reminiscences.docx?dl=0
- **Brian Hobson: I** am glad that you, (Hilary Caminer), were able to attend our recent "LEO do" as chaotic as it was! You asked if I would explain the origins of our group and also to help you understand our Lyons/LEO relationship as it seemed rather confusing.

I will do my best. The meeting started when Norman Beasley retired from Lyons in/around 1982. Norman had been a member of Lyons/Leo from the early days and was Operations manager on LEO 1, LEO II/1, and LEO III/7 before becoming Computer Consultant to the Lyons group of companies.
Norman lived in Chalfont St Giles (I think this is correct) and Peter Bird (Lyons Programming Manager) and Alex Tepper (Lyons Operations manager) would go to visit him fairly frequently. Carol Hurst, who was at our meeting, also lived nearby and had also left Lyons would join the others making a foursome. In my Lyons career I started in Operations as an operator (employed by Norman) and later became a consultant working with Norman. When Alex Tepper was promoted to Head of Computing for Lyons I became Operations manager and joined the gathering.

All Lyons computer staff are quite a close knit group and various members moved into senior positions within other companies within the group as Accountants or Head of Computing, etc. Tony Thompson, who you met, became Chief Accountant for various companies, Alan King (now passed away) became head of Lyons Maid computing. They joined in our meetings and gradually as time went on our group has continued but with varying members, as old ones passed away others came to know of us and joined. Peter Bird was the mainstay organiser as he had the most contacts. Cyril Lanch is a fairly newcomer to our group but did not step back quick enough when volunteers were sought to carry on Peter's organising! Hopefully that explains our group, now for the LEO/Lyons feelings – difficult!

History of Lyons and computers. Lyons built a computer to do work for Lyons Electronic Office (LEO), staff working on the computers were Lyons staff. With the success of computers Lyons formed a computer company LEO Computers Ltd but the staff although working for LEO were still Lyons staff at heart. When the company LEO was sold the computers remained at Lyons and were operated by Leo staff until they chose to remain at Lyons or were replaced by new Lyons staff.

Lyons computer history goes from LEO I through Leo II/1, LEO III/7, LEO 326/46 and eventually to IBM computers. Our attachment to LEO may be explained by the fact that the original computers were still in use at Lyons long after LEO had been sold and in many instances the staff working them were the original staff. When LEO was sold the computer department became LEO and METHODS, then Lyons Computer Services Ltd (LCS My best analogy would be: If you had a daughter and she got married she would still be your daughter and a member of your family although she would have joined another family, you would continue to be proud of her. The same is how our computer department feel.

When LEO was sold the computer department became LEO and METHODS, then Lyons Computer Services Ltd (LCS), and finally Lyons Information Systems Ltd (LIS).

As you may now gather we were very proud of our heritage but so was the computer industry. We as a Computer Bureau (which we had been from day 1 of computers) strived to continue to be at the forefront of computer usage and computer and peripheral manufacturers were very keen to be associated with us offering us very competitive deals to use their equipment. Our computer department was frequently put under the microscope by the main Lyons Board as the newer family Board members felt that computing was expensive but on every occasion the auditing companies, including IBM, were in awe as to how we are able to do so much with so little and still lead the world. An example of this was back when Lyons had a fire on the Xeronic Printer in the LEO III/7 computer room. We made an arrangement with the Post Office (as it was then) to use their LEO III (overnight) in Charles House which was just across the road from us. Our shift of 6 operators replaced a shift of 20+ operators.

I cannot remember the trade magazine that did a piece on us as we were the first company to wire an entire building with various departments on different floors to use Local Area Networks linked into the mainframe. Also, one of our external customers was a large American personal tax company which had a large computer centre in the States but wanted a worldwide centre based in London. We installed a duplicate of their system onto our computer, they provided no computing staff as all maintenance etc. would be done from the States we only had two user/managers with us. Their system was difficult for their users to manage and I spent a lot of time supporting them because of the complexity of their system. Eventually I volunteered to improve it for them and wrote a few simple programs and restructured their system making it much more efficient (saving hours a day of machine and their input time). The computer staff in America were interested in what I had done and came over to see for themselves, they were amazed and the CEO asked permission to adopt our version of their system to replace their own!

My own involvement with Lyons started while I was at school. My brother, Colin, whom you met was an operator at Lyons on LEO II/1 (but employed by LEO Computers) and I used to go with him to work some evenings or when I was not at school. I was able to help operate the LEO II computer (unofficially of course) and met the engineers on the LEO III/7. When Colin moved to Hartree House I also used to go there as well and helped out on the LEO III installed there. I loved the job and it really appealed to me so when I left school (in 1966) I went for interviews at Lyons and ICT (as it was then). Norman interviewed me and offered me the job (it helped that I knew several of the staff by name which impressed him!). I worked my way up from trainee operator to Ops Manager until the closure of the company in 1991. I won't bore you with my life history of the roles I held and of the changes in company structure that I made over the years as most of this was during our IBM period.

I hope that this gives you some insight into our little group and our attachment to LEO and why we feel a little side-lined when at the LEO Computer Society gatherings Lyons seems to be irrelevant. Maybe that is

changing now but at the few meetings I went to over the years that is how it seemed which is why I have never bothered joining

- **Colin Hobson:** Weather, Wildlife and LEO Computers

  Both LEO 1 and the LEO 2s were not installed in cosy, air-conditioned palaces. They went into normal office accommodation and the heat, generated by the hundreds of thermionic valves was conducted away by fans and overhead ducting. The operators were kept cool only if they could open the office windows! This could cause a number of unexpected problems:

  On LEO 1 rain could be a problem. It was necessary to look outside before turning anything on. If it was raining, or snowing, the heaters in the valves needed to be turned on before the cooling fans. This built up enough heat to ensure that the water droplets sucked in were vaporised before they hit a hot glass valve cover. Failure to do it this way round would result in a series of high pitched squeaks as the glass, of the valves cracked. This would be followed by the sound of engineers swearing! If there was no rain, it was better to get the cooling up and running first.

  On LEO 2 this was not a problem. The ventilation system didn't cause the computer much in the way of problems. The computer did provide a lot of heat, most of which was conducted away by the ventilation system. However, there was still a lot of peripheral equipment and human bodies churning out heat. The only option, certainly on LEO 2/1 was to open the windows to the outside world. Mostly this worked well. However, there were times when the outside world made its way into the operating area to cause chaos. Wildlife was one such problem. The occasional visiting bird could provide some distracting entertainment but the worst problem I can remember was a swarm of small insects which came in through the open windows and settled on the paper tapes and punched cards. They got squished into the holes in the cards and tapes changing the data.

  Many years later I was working at a Post Office (now BT) site where a snake made its way through one of the doors from the outside world, down a short corridor and then got stuck between the automatic airlock doors into the air-conditioned computer hall.

  Note: Colin Hobson was interviewed by Marie Hicks for her book Programmed Inequality (see above) and provides one of her case studies noting the story of LEO.

- **Stan Holwill:** My LEO Involvement & Memories January 2018 Date of birth 1932.

  Abstract: Stan started his working life in 1947, with an interest in engineering, at an electrical engineering firm Clifford & Snell in Sutton Surrey.

  I served a five years engineering apprenticeship. During this time I spent one day a week at Wimbledon Technical College studying for ONC & HNC, followed by National Service in the Royal Corp of Signals working as a radio mechanic. On return to civilian life spotted an advertisement in Wireless World from J. Lyons for an engineer to work on digital computers. Applied, interviewed by Ernest Lenaerts and Peter Mann, accepted and joined LEO as junior computer engineer in January 1956, working at Cadby Hall on LEO I. Rapidly promoted to prototype commissioning engineer on LEO II/I and then chief maintenance engineer for the Elms House LEO II. From November 1956 acted as managing commissioning engineer for LEO IIs until 1961 responsible for a series of LEO II customers starting with Stewarts and Lloyds (LEO II/3) and going on to LEO II/11. In 1963 appointed Manager of the Maintenance Development Department (London). Remained in post until end 1970 when Minerva Road was closed. Subsequently worked with other ICL machines until retirement in 1991. Enjoyed his 15 year career with LEO, with working with LEO II the highlight.

  Text: **https://www.dropbox.com/h**

Neville Lyons

Retired Army Officer, related to Sir Joseph Lyons co-founder of J. Lyons & Co. Limited, researching history of Lyons and of LEO lectures on Lyons and LEO. see synopsis bo lectures below:

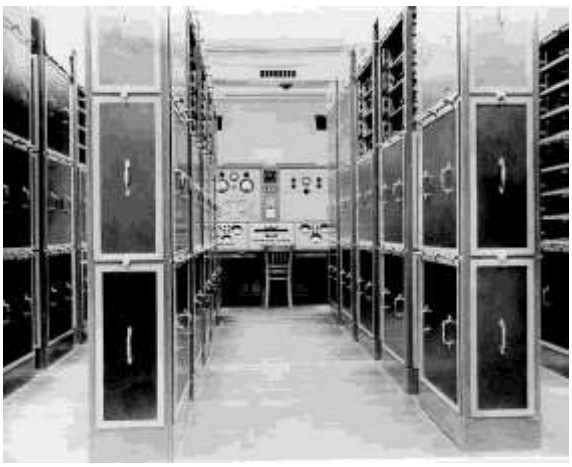
Synopsis for Presentation
by Neville Lyons

The Story of LEO: The Very First Business Computer

The story of LEO is an extraordinary one. The world's very first business computer was designed and manufactured, not by one of the electronics giants such as IBM, but by J Lyons & Co, better known for its Teashops and Corner House Restaurants, its Swiss Rolls and Fruit Pies.

After World War 2, upward trend in office costs made the company realise that some form of automation was essential for processes such as stock control and pay-roll. There was nothing available at this time to meet their needs and so, with the self-assurance and innovative spirit which had become their trademark, they set about designing and building their own computer. They produced a working model in 2 years and called it LEO, aptly standing for Lyons Electronic Office. It achieved success and publicity beyond anyone's wildest dreams.

Neville Lyons is a relative of the company's co-founder Joseph Lyons. The illustrated presentation will describe how the project was conceived and progressed, some of the personalities involved and how some leading industrial companies and government departments seized upon the invention and purchased later models of this new 'electronic brain'. A video will be shown featuring some of the personalities who were involved in the early days of LEO and who are still around to tell the tale.



LEO 1 at Cadby Hall, HQ of J Lyons & Co Circa 1951

If any reader knows of any other reference please let Frank Land know at f.land@lse.ac.uk

The Joe Lyons Story Food for Thought

Synopsis for Presentation by Neville Lyons

The Lyons Teashops, the Corner House Restaurants and, of course, the Nippy waitresses have become part of social history. But this is only part of the story…..

The power point presentation, with archival photos, stretches from 1887 to 1990's, from the time when Joseph Lyons, a born entrepreneur, but with no previous experience of the catering industry, co-founded a company to sort out the indifferent catering at national exhibition halls of the late Victorian era. From small beginnings, the company progressed into catering for the general public and was to become the first 'food empire' in the world.

We shall hear about all the main activities throughout the history of the company, including those that are not so well known, such as catering for the 1901 Cup Final at Crystal Palace, the largest banquet for 8000 Freemasons at Olympia, for 15,000 guests at Royal Garden Parties and the in-house development and manufacture of the world's first ever business computer, LEO.

The talk includes amusing anecdotes and many surprises along the way.

The speaker is Neville Lyons. There is a family relationship: his grandfather and Sir Joseph Lyons (knighted in 1911) were first cousins. Although Neville was not personally involved with the company business, this relationship was a driving force towards the research that led to his talks.

December 2018

- **Joe McNulty** DOB: 1940
  Joined LEO: 1966
  Role in LEO: Site Maintenance Engineer LEO III; System 4
  Abstract: Born in Northern Island, father miner, mother textile worker, moved with large family to village in Northumberland, failed 11+, educated in local elementary school till age of 15 without any qualifications or certificates. One brother was an apprentice electrician at a local pit and attended Carlisle Technical College one day a week. Joe taking a peek at his brother's books became interested and he too became an apprentice electrician at a local coal mine and attending Carlisle Technical College where he gained his ONC in mathematics and Electronics at the highest level. In 1961 opted to join RAF as a Radar technician serving part of his time in Malta. On completing his service, having acquired a love for electronics, looked for a job with computers and in 1966 was taken on by EELM to train as maintenance engineer on LEO IIIs at Radley House. Notes the quality of training he received. "I loved evert minute of the course". Moved to Scotland as site engineer on a LEO IIIs and System 4 machines. After a successful career left ICL in 1972 to work in a number of electronic companies, before setting up his own consultancy and completing an honours degree in mathematics at the Open University. Joe retired in 2009. Final words from a fascinating memoir: "For me, I think, LEO provided an environment and situation in which I could succeed in my own terms. I was doing work that I could understand, that I liked and that made sense to me. In a sense, that gave me an attitude of if I can understand and use a computer, I can learn to do anything. That's a big thing to say about a company but I believe that, even then, it was a special sort of company with special people in it".
  Repository: Dropbox
  https://www.dropbox.com/search/personal?path=%2F&preview=Joe+McNulty+Memoir.doc&qsid=46282

171009852707120531243657035&query=joe+mcnulty&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D
Copyright: LEO Computers Society
Restrictions: None Known

- **W.E.J. (John) Parry.**

  Abstract: Employed by Stewarts and Lloyds originally as engineer on their LEOII/3 computer and subsequently as programmer. Had received training as electrical engineer while doing extended National Service in RAF and in that capacity witnesses UK H bomb tests in Pacific Islands. Joined Stewarts and Lloyds at Corby after National Service and was transferred to help run the LEOII. Subsequently joined ICL. Has recently contributed to the Corby Heritage events commemorating, *inter alia,* to their story of LEO at Stewart & Lloyds. Provided two articles for the May 2018 "Legends" event, including **John's Story**.

- **Tony Priest**, visited Cambridge Centre for Computer History, May 2018 and was really happy to hear about partnership with LEO Computers Society and LEO heritage plans. He worked at Hartree House. He was employed as LEO II was being decommissioned and worked on LEO III there. He left a comment on our Facebook page over the weekend: "What a nostalgic visit! The Centre is doing great work to preserve so much that is important, especially the vital importance of the pioneering British computer industry. From the LEO displays - my first job was programming for LEO III - to the development of home computers and games consoles. The incredible computer power now available at such low cost. Keep it up please. And all the best for your Lottery funding bid for the LEO archive material project.

- **Chris Reynolds** Born 23 March 1938 in Hertfordshire. Brought up in Somerset & Devon; Six schools attended before age of 13. Dartington Hall School, Totnes, Devon 1952-56 (very progressive and unconventional). University College London 1956-1959 – BSc in Chemistry. Exeter University 1959-1962 - PhD in Theoretical Organic Chemistry. After starting a career as an Information Officer at a public institution decided on a career move – for a higher salary – with Shell-Mex & PB in 1965 as a programmer working on their LEO III computer, but joined EELM as a Systems analyst/ sales consultant in 1967.. Worked on a number of projects but became dissatisfied with the way applications were described. He proposed the development of a language (first named DORIS later extended and renamed CODIL) designed for users being able to define their own systems and interested the LEO management in its development. Joined Pinkerton's team in Minerva Road for further work on his notions. Despite progress ELM did not take the ideas further and in 1970 Chris left, first for a job with Plessey as a systems analyst and then in 1971 joined Brunel University to start an academic career, finishing in 1088 with the title Reader. Much of his research was focused on the development of CODIL resulting in a spate of Conference presentations and Journal articles. Ill health and poor relations with new head of department led to early retirement followed by some lecturing at De Montford University and much local history work in Hertfordshire , but also some further work on Codil. Active member of LEO Computers Society . See https://www.dropbox.com/s/jt6vmfovwjumamm/Chris%20Reynolds%20Career%20History.docx?dl=0

- **Mike Smith**, Trivial Reminiscences of a LEO Man. Mike had two separate careers with Lyons. From 1952 to 1959 working in the Bakery Division, leaving Lyons for what proved a bad choice, selling insurance, and returning in 1960 as an Operator on LEO, first in Elms House on LEO II and later transferred to Hartree House to work on LEO II/5 and LEO III. Appointed shift-leader after 10 months and later promoted to Chief Operator under Bob Woodward. Subsequently asked to lead a team in the new role of acting as operating consultants to LEO clients. The interesting reminiscence are filed in Dropbox at:
  https://www.dropbox.com/preview/LEO%20Oral%20History%20project/LEO%20Memoirs%2C%20Reminiscences%20and%20Anecdotes/Mike%20Smith%20reminiscences.doc?role=personal
  or can be obtained on request from Frank Land – f.land@lse.ac.uk – or Mike Tyzack.

- **David Tebbs** Date of Birth: October 1938, joined LEO 1964 left 1969
  Memoir: I joined the company earlier enough to qualify for the society, starting work at Hartree House. However, I was assigned mainly onto a KDF 9 client project and then and System 4 Sales. My only LEO computer work was self- study of the LEO coding manual (to fill in 3 weeks awaiting my first programming course - which turned out to be KDF9) and taking on, as area manager, responsibility for the Lyons' account shortly after their computer room fire. Even the latter was short lived as I was then promoted to set up and run the new Real Time department.

https://www.dropbox.com/s/x1060y7bk8djvf7/David%20Tebbs%20memoir.doc?dl=0 For a listing of David's current activities (October 2018) see https://uk.linkedin.com/in/davidtebbs###

- **Tony Weber:** LEO Australia. "I was in the founding management group (Accountant/finance director) of the Australian subsidiary in the early 1960's under the management of Peter Gyngell.
  I had 25 years service with the Leo/ICL group of Companies, which then lead to another 30 years in the industry including service in Hong Kong then Boston USA. I spent the last 18 years up to 2015 on the Board of the public Company Prophecy International Limited; an Australian listed software Company.
  I have great memories of Leo, and the service it provided to the Australian business community in the early computer days, and enriched employment to 100's of staff in the IT industry."

- **Pat Whitaker** Joined Cerebos Foods Limited – a LEO III customer – in 1964 – after graduating with an honours degree in mathematics. Pat had taken the LEO aptitude test before the job offer and taken the LEO programming course at Hartree House. Pat worked on the Cerebos sales invoicing suite using Intercode. In 1967 Cerebos replaced its LEO III with a System 4 computer.

- **Michael Wilson** Currently lives in Canada. I joined Leo in 1961 at Minerva Road. I had just graduated from Teachers College and in those days a teacher was at the bottom of any salary scale. So I applied for and was hired as an Instructor for the LEO III Field Engineering Training School. Soon I was Manager of Leo 3 and KDP 10 training. I had gone to Kidsgrove to learn the KDP 10 and then taught the first class in London. I worked for Reg Allen and then John Wheeler, who I think are still members of our alumni, as I am still in touch with Reg who lives in Dawlish. Until recently I still had Marketing Brochures for Leo 3 and Leo 326 and the Lector and an organisation chart of the School! I took them two years ago to San Jose when I was to meet Dag Spicer at the Museum of Computing. Unfortunately, due to some health problem, we did not meet. However, now cannot find them!!! **After over 55 years!!!** I will keep searching for them

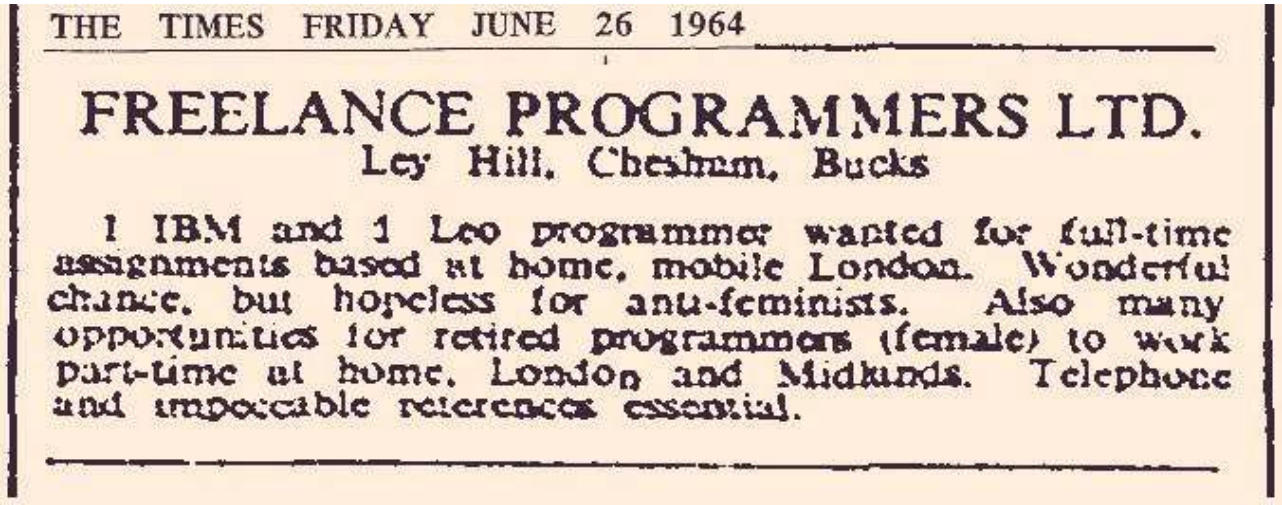
- **John Winterbottom:** **DOB:** 1928

  Reminiscences in 2 parts. Part 1 Life with LEO, part 2 pre and post LEO career
  Joined LEO: 1960
  Role in LEO: Design Engineer working with John Pinkerton
  Abstract: John had a long career as a design engineer in the electronics industry, starting as electrician in the RAF after leaving School having specialised in Science and Maths. Followed up with Degree at Durham University. Later took MSc at Birmingham specialising in solid state physics and digital computing. Employed first by Lucas/CAV and then MIRA was head hunted to join the Data Recording and Instrument Company as Chief Engineer, a company associated with ICT. Left after contract dispute in 1960 to join LEO to work with John Pinkerton. Associated with a number of high level projects including a Government sponsored project on data transmission for the coming network age. Also heavily involved with the establishment of standards working with ECMA. Left LEO in 1969 as he felt the creation of ICL had emasculated the innovative LEO research team. Joined Farrington – another specialist in data recording, working partly in the USA. Finished career working in management department of Portsmouth Polytechnic. John provides a fascinating account of life as an enthusiastic design engineer as well as his appraisal of the people he worked with at LEO.
  Repository: Dropbox Part 1
  https://www.dropbox.com/search/personal?path=%2F&preview=John+Winterbottom+Memoirs.doc&qsid=731880416927849387761396463539 75&query=winterbottom&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D
  Part 2
  https://www.dropbox.com/search/personal?path=%2F&preview=John+Winterbottom+memoirs+2.doc&qsid=731880416927849387761396463539 75&query=winterbottom&search_token=maaZCi5EZfs9ghMHde3MaOmE5gIkeIs7mVlUbNhfSkQ%3D
  Copyright: LEO Computers Society
  Restrictions: None Known

If any reader knows of any other reference please let Frank Land know at f.land@lse.ac.uk

Marie Hicks Twitter message:

In 1964 the inimitable **@DameStephanie_** ran this job ad in **@thetimes**, seeking programmers for her startup. "Anti-feminists" need not apply--plus opportunities for women who'd "retired"



THE TIMES FRIDAY JUNE 26 1964

FREELANCE PROGRAMMERS LTD.
Ley Hill, Chesham, Bucks

1 IBM and 1 Leo programmer wanted for full-time assignments based at home, mobile London. Wonderful chance, but hopeless for anti-feminists. Also many opportunities for retired programmers (female) to work part-time at home, London and Midlands. Telephone and impeccable references essential.

MEDIA COVERAGE

- **BBC Calling Europe**, February 1954, John Pinkerton talk on LEO reported in LEO Chronicle, February 16th 1954.
- **BBC French Service**, talk on LEO by Mary Coombs

- **BBC 1 TV** in March 2012 ran a 5 episode series fronted by Len Goodman, reminiscing about the 1950s entitled ***The 1952 Show*** in honour of the Queen's Jubilee. Episode 5 screened on March 30th at 9.15am. It featured the LEO story with an excellent interview of Ernest Kaye. See also http://www.bbc.co.uk/programmes/b01f9qw3/broadcasts/2012/03
The section featuring LEO and Ernest Kaye can be seen on YouTube at http://www.youtube.com/watch?v=GE6TX70A3Rc

- **Granada TV** (2003), London's Home Movies. Episode 3 includes a section on LEO featuring David Caminer and Peter Byford. Copy held by Trevor Hughes ex LEO peripheral equipment engineer on VHS tapes.

- **60th Anniversary event at Science Museum 11th November 2011**

The event received wide coverage including interviews on the BBC Today programme, BBC World Service, and BBC5 Live Outriders programme. It was also covered by the Daily Telegraph and the Daily Mail website. A video interview of Georgina Ferry, Ernest Kaye, Mary Coombs, Ralph Land and Frank Land made for Google was also presented. The links below include reports in media, video recordings, radio recordings, photographs.
http://www.youtube.com/user/LeoCompSoc/videos
http://storify.com/lynetter/leo-60th-anniversary
http://www.pcauthority.com.au/Tools/Print.aspx?CIID=280510

- **Eric Schmidt in the 2011 MacTaggart Lecture** noted:

"You (UK) invented computers in both concept and practice. (It is not widely known, but the world's first office computer was built in 1951 by Lyons' chain of teashops!). Yet today none of the world's leading exponents in these fields are from the UK"
http://s3.documentcloud.org/documents/238974/mactaggart-lecture-2011.pdf

- **The Guardian on 2011 McTaggart Lecture** Bridging the arts and sciences divide
http://www.guardian.co.uk/technology/2011/aug/29/bridging-arts-science-divide

- **Sunday Telegraph July 1st 2012** Christopher Middleton interviews Eric Schmidt as part

of the paper's campaign to "Make Britain Count" and in his comment on the interview repeats Eric Schmidt's earlier notes on the role played by LEO in pioneering business computing.
http://www.telegraph.co.uk/education/maths-reform/9288256/Make-Britain-Count-Google-head-Eric-Schmidt-supports-our-campaign.html

- **TV Channel 5** ran a series of programmes on ***Disappearing Britain*****.** The third episode in December 2006, entitled The BRITISH CUPPA WITH WENDY CRAIG, and included a section on J. Lyons with its Corner Houses and Teashops. This included the story of LEO including an interview with Frank Land. See also http://ftvdb.bfi.org.uk/sift/title/824846?view=synopsis and watch on http://www.ovguide.com/tv_episode/disappearing-britain-season-1-episode-3-the-british-cuppa-with-wendy-craig-536421

- **BBC Radio 4** commissioned a programme from Pennine Productions called **Electronic Brains** which was broadcast on 30 October 2001. The programme was compiled by and fronted by Mike Hally and one of the four episodes featured the story of LEO. See http://www.bbc.co.uk/radio4/science/electronicbrains.shtml

- **BBC Radio 5**/Live Tuesday, 29 November 2011. Short piece by Jammilah Knowles on the pioneering LEO enterprise. LEO: Making history.
http://www.bbc.co.uk/blogs/legacy/outriders/2011/11/leo_making_history.shtml
- **Celebrating LEO, the word's first business computer,** Google Europe Blog,, November 17, 2011
http://googlepolicyeurope.blogspot.co.uk/2011/11/celebrating-leo-worlds-first-business.html

- **ITV (LWT London area only)** is to show a series of 8 programmes called London Home Movies on Sunday afternoons. The series will start on 9th November 2012 at 5.30. Several members have contributed to the series and Trevor Hughes's contribution is included in the first programme.

  References to LEO will appear in the programme devoted to Work which will appear on Sunday November 30th at 5.30 pm.

  Interviews with David Caminer and Peter Byford will be included with the LEO film and it will include some footage of a home movie taken by Brian Eaton in the sixties, of LEO 3 together with an interview with Brian.

- **National Public Radio (NPR), USA**

An episode of Revolutionaries, a co-production of the Computer History Museum, Silicon Valley and KQED television, Published on Jul 6, 2012 by Computer History. The subject is the contribution to computing of Sir Maurice Wilkes.
http://www.youtube.com/watch?v=h9DrKQ2isIk&list=UUHDr4RtxwA1KqKGwxgdK4Vg&index=5&feature=plcp

- **The Register**:

Live Chat NOW: LEO, the British computer that roared, 28th June 2013 (see http://www.theregister.co.uk/2013/06/26/live_chat_leo/). Gavin Clarke, editor of The Register and members of the audience interview Frank and Ralph Land online in real time. The outcome is rather messy as questions and answers do not come out in a proper sequence.

- **UK Computer Heritage**

at Google HQ in London 1st July 2013 to celebrate UK contribution to Information and Communications Technology. Featured the Video commissioned by Google for the 60th anniversary of LEO held at the Science Museum: http://www.youtube.com/playlist?list=PLG7EqWtzeIhXjSD4SdfPx1WQICKZMVcP4

- **BBC How the Computer Changed the Office Forever.**

BBC Magazine. Broadcast August 1st 2013 BBC Radio 4 at 13.45 as part of a 10 episode series by Lucy Kellaway entitled **Lucy Kellaway's History of Office Life** and explores the changes brought about in the office by computers and this episode starts with a brief review of the LEO story including a photo of LEO I.
http://www.bbc.co.uk/news/magazine-23509153

- **BBC 4 The I.T. Girls**

21st August 2013, 11.00 am BBC Radio 4. Fronted by Martha Lane-Fox its contributors include, Mary Coombs, Dame Stephanie Shirley, Ann Moffat and Tilly Blythe. From the 1950s to the mid-1970s in Britain, many of the pioneers of early computing were women. This was a highly skilled new world of work providing opportunities that were often in sharp contrast to the established norms of post-war British life, with new technology helping drive social change.

  - Mary Coombs was the first woman to program the world's first commercially available business computer: the Lyons LEO. She tells us what it was like to work on this machine - which was the size of a room.
  - In 1962 Dame Stephanie Shirley founded a programming company, Freelance Programmers, which only employed women. She became a very successful figure in the industry.
  - Ann Moffat started her career at Kodak in 1959. She programmed the black box flight recorders for Concorde and wrote missile programmes for Polaris.
  - The Science Museum's Keeper of Technologies and Engineering, Dr Tilly Blyth, explains the significance of her museum's collection of machines that changed these women's lives.
  - Martha Lane Fox presents the programme. In 1998 she co-founded Lastminute.com, and become one of the pioneers of the dot com era. See http://www.bbc.co.uk/programmes/b038hfkx

- **BBC News Channel: Celebrating the UK's Computer Pioneers.** http://news.bbc.co.uk/1/hi/technology/7521868.stm A Brief account of the role played by the UK in the development of computers from Bletchley to LEO.

- **BBC Radio 4 Extra**, 2nd November, 2013, 9.00-12.00 am and 7.00- 10.pm. A three hour compilation of computing history from the BBC radio archives, fronted by Maggie Philbin at Bletchley Park. The programme started with Charles Babbage, and Ada Lovelace, went on to Bletchley and the second world war code breaking exploits, then the LEO story from the Make Hally LEO episode in the four-part story of the Dawn of Computers (about 20 minutes), Clive Sinclair and the Micro Computer revolution, Berners-Lee and the World Wide Web, and finally the spread of Social Computing with Facebook and Twitter. http://www.bbc.co.uk/programmes/b03g8lxl

- **BBC 1 ONE Show,** 13th November, 2014, 7.00 pm – 7.30 pm devoted a section of the programme to Lyons and the LEO story, with extracts from a LEO film, and explanations from Peter Bird and Frank Land. It was well edited and presented, lauding the LEO initiative and stating clearly Lyons' role in building the world's first business computer

- **BBC Radio 4: Hidden Histories of the Information Age** 23rd October 2014 at 13.45. Repeated week commencing January 4th with LEO story on 7th January at 9.30 am. One of six 15 minute programmes, presented by Aleks Krotoski, devoted to specific exhibits at the new Information Age Gallery which opened on 24th October in the London Science Museum. The program, on the 23rd of October, told the story of LEO as ushering in the new age of business computing. It involved interviews with Jessica Bradford from the Museum (content manager of the new Gallery, Gloria Guy and Frank Land from the LEO Computers Society, a teashop manageress who had been a user of the original teashop ordering program and nicely rounded off by Tilly Blyth (who had been largely instrumental in the making of the new Gallery from concept to final exhibit) from the Science Museum. Altogether a well-balanced telling of the LEO story and how it fits into the development of the Information Age. It can be heard on http://www.bbc.co.uk/programmes/b04m3ftg

- **The Guardian Notes and Theories from the Science Desk**, 22rd October carries a comprehensive note on the Science Museum Information Age Gallery LEO Story Exhibit, including the film clip which forms part of the LEO exhibit. http://www.theguardian.com/science/blog/2014/oct/22/information-age-cake-computer-changed-world-science-museum

- **The Richmond and Twickenham Times** Nov 2014 carried a photograph of the presentation to Jackie Caminer and Helen Pinkerton of framed photographs of David Caminer and John Pinkerton respectively by Peter Byford and Ray Hennessy. Included was a brief summary of the LEO story and the key roles played by David Caminer and John Pinkerton in the LEO story. See

http://www.richmondandtwickenhamtimes.co.uk/news/11581099.Widows_gather_for_tribute_to_their_husbands_pioneering_computer_work/

- **BBC Radio 4 'Ways of thinking'** 4th April, 2015, 1.30. An account by Naomi Alderman of what programming and coding involves including looking back at what underlies high level languages with an excerpt from Mary Coombs Oral History talking about programming LEO I.
- **BBC Radio 4 'In Business'** 9 April 2015 8.30 pm includes reference to LEO with some photos. See http://www.bbc.co.uk/programmes/b05pqx2g
- **Stewarts & Lloyds.** Corby Town Council is holding a heritage exhibition, open until end of September, 2015 1.00-4..00 weekdays, 11.00-2.00 Saturday, celebrating the town's connection with early computers. It features LEO II/3, the first LEO delivered to an outside company: Stewart & Lloyds, steel makers located at that time in Corby. See http://www.northantstelegraph.co.uk/news/top-stories/discover-corby-s-computing-heritage-with-new-exhibition-1-6866793 and http://www.corby.gov.uk/sites/default/files/Leo%202.pdf
- **Living Legends Hidden Histories Exhibition,** including a presentation on LEO II/3 at Stewarts and Lloyds and exhibit of Mercury Delay memory. Thursday 3rd May 2018 at 6.00pm
  Rooftop Arts Centre. Chisholm House, Queens Square, Corby, NN17 1PZ.
- **BBC Radio London**, 2010, interview of Neville Lyons, with Robert Elms, on the occasion of opening of the new Modern London gallery in the Museum of London, which featured part of the frontage of the Coventry Street Corner House, donated by J Lyons company to the Museum.
- **BBC Radio 4 'Today Programme'** 2013 on the occasion of a major exhibition of the Lyons Teashop Lithographs at the Towner Gallery, Eastbourne. The recording, introduced by Justin Webb, was conducted by Nicola Stanbridge, the interviewees Neville Lyons, Charlie Batchelor, Curator and David Gentleman, one of the lithograph artists.
- **BBC Radio 4 'Computing Britain'** a 10 part series presented by mathematician Hannah Fry from University College London. Broadcast on Monday to Friday between 14th and 25th September. The series will start in the mid-1940s and finish in the early 21st century, concentrating the UK's part in computing history between these years. The series features the story behind machines such as LEO, EDSAC, Baby and ERNIE as well as later breakthroughs such as packet switching, home computing, the BBC Micro and ARM microprocessors.
  Program 2: LEO: The Electronic Office, 15th September 2015, 15 minutes. See http://www.bbc.co.uk/programmes/b069rvb4
  Reflections on Program: Peter Byford: I heard the programme in your *Computing Britain* series about LEO. Whilst I was delighted that you made a programme about LEO and Lyons, I was disappointed about a number of aspects about it.
  You used our film and other recordings that we provided, I should also state that we hold the Copyright of the LEO film, made in 1957 as I told you. Despite this there was no acknowledgement of the Society or mention of its excellent website - see below. I looked at your website and there was no mention there either. Please correct this when you can and acknowledge the Society.
  You used a number of people in your programme who were not LEO people to describe Lyons and LEO and possibly because of this you made some mistakes. The only LEO people the late Ernest Kaye, Mary Coombs and Gloria Guy were taken from recordings/YouTube that we provided to you. The Society has a number of quite eloquent speakers who are, of course, knowledgeable about LEO. We could have checked your facts corrected any errors you have made before it was broadcast. One significant error was that you stated that LEO was operational in 1956 - no it was in November 1951 when the first LEO program went operational.
  I know Tilly Blythe of course, but who were that other people who were on the programme? Other than the presenter of course, they were not mentioned.
- **BBC 4 TV: The Joy of Data** July 20th, 2016, 9.00pm. See http://www.bbc.co.uk/programmes/b07lk6tj

  David Crawford in the Radio Times writes: "We live in a data driven world, where every industry you can think of relies on digital data, and there's the constant threat of drowning in information overload.

But why are we so enamoured of all this stuff, and how did we get to this point? Happily the ever enthusiastic Dr Hannah Fry – the Beeb's new go to mathematician – is here to throw a lifebelt with this witty explainer. She argues that data is the bridge essential for scientific discovery, to move from problem to solution – and invaluable in the modern world.

Along the way you'll learn how **J Lyons** purveyor of fine British tea and cakes was at the forefront of the computer revolution." The programme includes interviews with Mary Coombs and Frank Land. Guardian Review at https://www.theguardian.com/tv-and-radio/2016/jul/21/the-joy-of-data-review-who-knew-data-could-seem-so-magical-so-sexy
The Program was repeated on 18th September 2018 at 2.00 am

- **Wall Street Journal**, August 14th 2018, correspondence from John Kelly III, of IBM claiming IBM invented business computing and response from Norman Witkin refuting the claim and putting forward the LEO precedence. Frank Land has copy of correspondence. See https://www.dropbox.com/s/nva7ep5ejpuarde/Wall%20Street%20Journal%20Correspondence%20August%202018.docx?dl=0

- **BBC News East (West) One of the world's first computers gets VR reboot,** The LEO story retold in the context of the Cambridge Centre for Computer History partnership expectation to build a virtual reality version of LEO I – news item on local BBC News 24th October 2018 6.30 pm https://www.bbc.co.uk/news/uk-england-cambridgeshire-45953502.

- **ITV Grantchester, Episode 3, 25th January, 2019** investigating a break in at a computer laboratory includes a sequence mentioning EDSAC and the LEO teashop job. Available for viewing until Spring 2019 at https://www.itv.com/hub/grantchester/2a2958a0022

FILMS

- **LEO The Automatic Office,** 1957 promotional film highlighting the way LEOs were constructed and their many varied business uses, ranging from teashop inventories to Ford's payroll. Copyright LEO Computer Society. http://www.youtube.com/watch?v=-8K-xbx7jBM Also held by Computer History Museum Silicon Valley http://www.computerhistory.org/revolution/early-computer-companies/5/110/2260 and http://www.computerhistory.org/collections/accession/102705993

- **LEO: Celebrating The Pioneers:** A short film sponsored by GOOGLE made to highlight the contribution of the team behind LEO computers, to celebrate the 60th anniversary of it taking on its first "office job" on November 17th 1951. http://www.youtube.com/watch?v=Lrn24SdW64I

- **Ernest Kaye LEO 1952:** An extract from the 1952 show featuring Ernest Kaye and his involvement in the development of Lyons Electronic Office (LEO). It includes a glimpse of how he looked 60 years ago, barely any different from today. http://www.youtube.com/watch?v=GE6TX70A3Rc

- **Leo II Computer:** The latest in out series of early technologies from Michael Bennett-Levy's collection that went up for auction in October last year looks at the worlds first commercial business computer, the LEO II/3. Entering service in May 1958, the LEO II/3 (Lyons Electronic Office II/3) at Stuart and Lloyds in London was the world's first commercial business computer.
http://www.youtube.com/watch?v=y_Z6OGBif9w

- **Mary Coombs shares her story:** Mary Coombs was a programmer for LEO, the Lyons Electronic Office that was the world's first business computer. Produced by Google as part of a series of short films high lighting women's involvement in the early days of computing.
http://www.youtube.com/watch?v=C6DRr0Dhn4Q

- **Taking the Punch Out of Input,** 1970's era film by Lyons Computer Services focusing on input devices for LEO III range developed in 1960's. http://www.youtube.com/watch?v=6IPVdHHRc2Q

- **Electronic Data Processing.** A series of film strips produced by the Institute of Office

Management by its EDP Committee covering LEO I, Elliott 405 and Ferranti Pegasus. Available from Kevin Murrell at the National Museum of Computer History, Bletchley. Copy held by LEO Computers Society.

- **Unveiling Ceremony,** on the 29th November 2016 a commemorative plinth was unveiled in Lyons Walk in the Borough of Hammersmith and Fulham, a site overlooking the place once occupied by Cadby Hall the headquarters of J. Lyons & Co and the location of the world's first business computer LEO. The unveiling took place exactly 65 years after LEO carried out on behalf of Lyons the running of the world's first data processing application on an electronic computer. The unveiling was carried out jointly by Dame Stephanie Shirley and Frank Land in the presence of representatives of the Borough of Hammersmith and Fulham, representatives of the local MP, Andrew Slaughter, descendants of the families which had built J. Lyons & Co., members of the LEO Computers Society and friends of LEO including representatives of the Association for Information Technology. The erection of the plinth was arranged by the Borough of Hammersmith and Fulham and much of the funding provided by Tony Morgan of the LEO Computers Society. A film of the ceremony, including speeches by Peter Byford, a representative of the Borough of Hammersmith and Fulham, Frank Land, Dame Stephanie Shirley, and Tony Morgan can be found on https://youtu.be/FmHnKq15SGc For more information and pictures see http://ta.mdx.ac.uk/leo/leo-plaque-unveiling-in-london/ **The Sunday Times** carried an op-ed article by Dominic Lawson following the ceremony, entitled **65 years ago the age of the computer began ….. to sell better tea cake** page 24 4th December 2016. http://www.thetimes.co.uk/edition/comment/65-years-ago-the-age-of-the-computer-began-to-sell-a-better-tea-cake-zzpx63qx6

- **Cambridge Centre for Computer History** Exhibition of LEO history 18-19th November 2017, including presentations by Peter Byford and colleagues. Peter Byford's presentation available on You Tube at https://www.youtube.com/watch?v=N4zyZG0OxFI

- **YOUTUBE** 1969 Film celebrating 20 years of Ostrava Steel Works including a number of shots of their LEO III including shots with its chief engineer Jiri Baranek. The LEO episodes occur at 3m 24s, 7m 42s, and 9m 58s in the film. See https://www.youtube.com/watch?v=-OYm5GeZXc4&t=3s. Another 1971 Film of the steelworks featuring LEO can be found at https://www.youtube.com/watch?v=Wpm6LYgnb8w 7.46 minutes into the 10 minute film.

LEO AWARDS and PRIZES

❖ **The AIS LEO Award for Exceptional Lifetime Achievement in Information Systems**
The Association for Information Systems (AIS) is the institution linking academics in the discipline of Information Systems world-wide and has a membership in excess of 3000. It selects members who have made outstanding contributions to the study and teaching of Information Systems for the LEO Award (its highest honour), named in remembrance of LEO the First Business Computer. The award was inaugurated in 1999. See https://aisnet.org/page/LeoAward

❖ **The LEO Award Advisory Board**
The LEO's are named after the world's first business computer. Created by the Lyons Company of the UK in 1951 and with installations in Australia by Tubemakers, Shell and Colonial Mutual. LEO was the first computer in the world to be used to solve complex analytic problems including (but not limited to) calculating disease among miners, ballistic problems of missiles, mortality rates for insurance companies, "flutter" in new aircraft, how to make rain by seeding clouds and even calculating tax tables.
The awards celebrate outstanding achievements in the full range of Business Intelligence and Information Management activities:

- Data modelling, integration, quality, warehousing and mining
- Analytics, reporting, dashboarding and scorecarding
- Business Process Management
- Search
- Performance management
- Knowledge management and strategy

- to name a few. The awards are given to commercial organisations, government, and education initiatives as well as individuals who have excelled in the end-use of analytics and information management.

Governance of the LEO Awards is conducted by an Advisory Board consisting of seasoned members of the Australasian commercial, government and academic knowledge economy. The Board represent many industries and aspects of hands-on experience from the end-user community.
The awards were launched in 2010. See http://www.tbig.com.au/advisors/

- **Middlesex University: David Tresman Caminer Postgraduate Scholarship in Business Computing**

The scholarship was set up to honour the achievements if David Caminer under the aegis of The LEO Computers Society . The Scholarship is funded through the generosity of the Association for Information Technology (AIT) and its Trustees, and is valued at £5000 per annum. The scholarships will be available to students who have demonstrated excellent academic potential. Applications are welcome from students who have fulfilled the admission criteria and been offered a place to study for a postgraduate degree based in the School of Engineering and Information Science. A student will only be entitled to one award during his/her period of study with Middlesex University. The first students were selected in 2011. See http://www.scholarship-search.org.uk/grants/the-david-tresman-caminer-postgraduate-scholarship-in-business-computing-supported-by-the-leo-foundation-and-ait-trust-at-middlesex-university/hc_edufin.page_pls_user_sch_dets/16180339/220707/sch_id/58303/page.htm

The 2014 award winner Tope Ashiru writes:

"Receiving the Scholarship is mind blowing! It has restored me back on track and reinvigorated my career aspirations. My academic progression almost took a dark turn in the light of my father's prolonged illness which eventually took his life. I had thought it was all coming to a dramatic halt for me but the Scholarship came to the rescue! Now I can focus on finishing with a first class."

- **2016 Middlesex University David Tresman Caminer PhD Scholarship.**
The research leading to a PhD will investigate the role of LEO in the evolution of business computing with special emphasis on the philosophy which motivated a company in the food industry to build the world's first business computer. The project supervisor is Dr Giuseppe Primiero of the Computer Science Department. The scholarship is funded by a grant from the AIT. See http://www.mdx.ac.uk/news/2016/03/first-ever-business-computer-to-be-researched-at-middlesex-university and http://www.mdx.ac.uk/courses/postgraduate-research-degrees/research-studentships/david-tresman-caminer-studentship-for-the-history-of-computing and tinyurl.com/j3oh6ow.

Miscellaneous and Unclassified

- **Leo II Quotation and specification.** An individual who worked for Thorn/EMI found a manuscript quotation and technical specification for a LEO II circa 1958. The LEO II was valued at about £180,000.

A copy can be found in Dropbox at
https://www.dropbox.com/s/wy3xirkff35nae9/LEO%20II%201958%20Quote.pdf?dl=0

- Retronaut Website: 1952 **Behind the Scenes at Lyons**. Pictures and text about Lyons with a mention of them as computer pioneers. https://retronaut.com/content/1952-behind-the-scenes-at-lyons

Annex

Index to documents etc. in 9 boxes of papers plus a box of journal articles and cuttings.
From DTC's house in Sheen, catalogued January 2016 and added to May 2017

LEO papers in Sheen: BOX 1

Catalogued by hjtc January 2016

No.	date	Description of Document	pages	comment
1	Undated	**Manila folder: 'Timing a LEO Job based on L5'**	5	
2	1951/2	**List of Talks** for Winter Session 1951-52 and programme for discussion groups	4	Looks like a lovely piece of memorabilia
3	1952	**Manila folder**: **Layman's Guide** Drafts - Draft of Chapter 26 Input. Chapter 11 – The Coordinator - plus some flow diagrams	Approx. 10	
4	Dec 1953	**Manila folder: LEO II Test Programme M1/3** Technical material including lots of diagrams and flow-charts	30 plus	
5	1953-4	**Manila folder: Inland Revenue** specs. and tables with some handwritten notes and flow diagrams. DTC and unrecognised handwriting.	Approx. 10	
6	5.1.54	**Manila folder: Tea-blending** Paper and diagrams	Approx. 15	
7	10.12.54	**Manila folder: Tea Blending Control – Emergency system** Method summary plus charts	4 plus charts	
8	1955/6	**Manila folder: Development – Long term records.** Copies of correspondence with Lord Halsbury, Managing Director NRDC and memo to DTC and John Pinkerton from Mr Simmons on a further draft	20-30	
9	April 1957	**Manila folder: Executive Course**. Several copies of drafts and papers by DTC/PMG on: Parts Stores Jobs, Repetitive sequences, Costing and Production Control	Each 4-5 pages	
10	29.01.1959	**Paper: Stewarts and Lloyds Seminar** Choosing an Application by DTC	14	

11	Undated ? as above	**Paper: How to Prepare a Statement of Requirements for a Computer Application**	4	
12	March 1960	**Paper: How to Make an Appraisal by DTC –** appraisal of a computing job	7	Looks potentially useful to researchers
13	Undated, ? pre 1971	**Booklet: Preparing for a Computer** Management Consultants Association	8 A5	Looks potentially useful to researchers
14	29.11.1963	**Memo re Computer Appreciation Course for Top Civil Servants**	3	
15	26.2.1964	**Memo: Sales Consultants Course** From Mr Gibson to 20 people including DTC, Messrs Aris, Comish, F Land, etc.	3 plus several lists re catering!	
16	4.7.1969	**ICL binder: A Comparative Study of the Basic Language and the Synthetic Option Proposals for ICL's New Range**	Half inch thick	Marked SECRET
17	Dec 1969	**Paper: ICL: New Range Organisation Aside Memoire** Note by MLNF on a report of an investigation of possibilities for convergence of MU and ICL New Range Specifications	Approx 20	
18	?1970s	**ICL binder: ICL New Range Marketing Plan:** Vol 3 Customers in the 70s	1 inch thick	
19	06.10.1971	**ICL binder: ICL Business Plan:** Report to New Range Working Party October 13th 1971	14 plus appendices	
20	23.9.70 29.9.70 Undated Undated Dec 76 21.7.71	**ICL folder: containing NRPO Studies** – memo by DTC to Mr L Lightstone, Director-Sales **Short Description of New Range** – Mike Forrest **Note on New Range Data Management System** – DTC **Features of New Range** Note from John Pinkerton re **Paper by Professor M.V.Wilkes** plus the paper and a comment on it by DTC **Outline Business Plan** (John Aylett) and comments by DTC in October	3 8 9 10 17 4 3	Marked SECRET

	9.11.71	**Long-term Developments to 1900**- note from DTC to Alan Bagshaw Short Description of New Range – Mike Forrest		
21	1973	**ICL Bound booklet: Pocket Guide to System B**	17 – but very small – less than A5	
22	6/11/74	**Paper: Science Museum – History of the Computer Industry.** From BM Murphy Controller, Public and Parliamentary Affairs at the Science Museum asking for perusal of their draft chronology on the occasion of the new gallery on computers and computing.	18	Possibly a useful insight?
23	10/12/1976	**Contract between Cap Sogeti Systems and ICL Belgium** Plus further details of contract	5 plus annexes 25	
24	Feb. 1977	**ICL Binder:** The EEC Project Information Package	10	All about how to pack before leaving and tips on arrival in Lux!
25	May 1977	**Papers: Letters from R F Evans to EEC** re Demonstrations to be carried out before delivery of 2980 System.	10	
26	01.05.77 – 31.10.77	**CAP Sogeti**: Estimation Preliminaire pour une premiere tranche des travaux de conversion	16	In French
27	11.5.77	**CAP Sogeti**: Conversion des Applications C.C.E	23	In French
28	Jan 1977	**Paper: EEC Study Progress report** by J Prades	8 plus time flow chart	
29	1977	**Paper: A sizing for the EEC 2980** By L. Cohen	35	Highly Confidential – not to be copied
30	June 1977	**Red binder: EEC Project**- various memos etc. re June 18th Get-together.	Approx. 20	Mostly social re menus etc.
31	9/9/77	**Kirchberg Bulletin: Journal of the EEC Project**	8	Mostly social
32	March 1978	**Early Programming Activity at the University of Cambridge –** First draft of paper by	55 plus appendices	

		Martin Campbell-Kelly, Dept. of Maths and Computer Studies, Sunderland Polytechnic		
33	April 1999	**EDSAC 99** A bound paper on the occasion of the 50th anniversary of the running of their first program on 5 May 1949. Chronology mentions LEO.	75	This seems a very useful archive document. It may be widely available already, but potentially useful for research.

Also a copy of **Information Professional** April/May 2004 the IEEE
No obviously relevant articles!!

LEO papers in Sheen: BOX No: 2

Catalogued by hjtc January 2016

No	date	Paper	pages	comment
1	17.6.1953	**Flow-charts –** Tracings of simple flow-charts. 'Chocolate' account and 'Savings' account	4	
2	18.10.54	**Report – Tea Blending –** analysis of job, including pricing .	73	
3	11.55 – 2.56	**Handwritten pages of info re LEO II -** order constants, patterns and working locations plus handwritten set of operating instructions and error locations	20plus	Handwriting not recognised
4	22.1.1958	**Draft Report:** LEO Computers Ltd for C.A.V Ltd - - amended to read 'Kodak'	Approx 20	Complete with timings and costings
5	5.3.1963	**Memos from DTC and Frank Land–** comparison of policies and practice between LEO and English Electric	Approx 10	confidential
6	July 1966	**Report: The flow of medical information in Hospitals** - study commissioned by the Nuffield Hospitals Trust, undertaken by English Electric LEO Marconi Computers Ltd.	Huge file with flow charts – about 1 and a half inches thick	A very early example of systems, now probably very sophisticated but can still go horribly wrong
7	1967	**Advertising brochure for EEC System 4** – glossy and illustrated	14	
8	28.3.1977	**Cap Sogeti** Premiere tranche des travaux de conversion	16	In French
9	18.11.77	**2900 Systems Acceptance Activity Chart SYSAC 4**	Large flow chart	
10	Around 1977	**Article: 'A European Success story'** typescript	5	
11	1979/80/82	**ICL Technical Journal –** Vol 1 Issue 2, Vol 2 Issue 2,	Small bound	

		Vol 3 Issue 2 – 2 copies	booklets	
12	September 2001	**Papers on the theme: 'The World and Business Computing in 2051' entries for the NCC Prize** 4 papers from Scotland, Israel and USA predicting the future!	About 6- 20 pages each – one includes a powerpoint	

LEO papers in Sheen: BOX No: 3

Catalogued by hjtc January 2016

No.	date	Paper	pages	comment
1	1948	**Lectures –** a Lyons series of lectures on Electronics organised by John Simmons	Approx. 20	
2	1951	**Notes: Introduction to Programming** 3 Sessions for LEO Technical staff	Approx. 15	Exercises and solutions
3	1954/6	**Inland Revenue** Correspondence between LEO and Inland Revenue staff and Tax tables		DTC notes that standard charge per hour has been reduced from £75 - £50 as machine is more highly utilised.
4	2/53 – 9/57	**Thick file** of LEO Computers Limited Trading Analyses	2 inches thick!	Some interesting annotations
5	3/5/1956	**Folder: Job Requirements** Littlewoods Mail Order Stores Ltd Stock Control	58	
6	Up to Dec 1956	**File; 'Other Computers'** Includes info on other early computers and notes on visits and a colloquium at Cambridge, May 1952, notes on NPL etc	1 inch thick	This looks very good! Note from DTC July 1957 'My impression is that IBM have a long way to go before they will be in a position to offer the planning and programming service that customers in this country are tending to demand.'
7	1960s	**Draft Lecture notes by DTC** - all handwritten! What a computer can do, Selecting a computer application, marketing	1½ inches	
8	Nov/Dec 1964	**Report and recommendations following visit to RCA** by DTC, DJ Blackwell and ACD Haley	Approx 100	Marked confidential

9	1967	**English Electric Computers folder: The CAV integrated system** – reprinted article from Data Systems by Laura Tatham	4	
10	1967	**English Electric Computers booklet: System 4 Program trials system**	20	
11	1967	**English Electric Computers booklet: System 4-30 Software**	18	
12	2/3/78	**Flow chart:** 2900 Systems acceptance activity chart	1	
13	22/8/78	**EEC Contract** No EEC/H/07 between the EEC and ICL Belgium	¾ inch	
14	1/10/79 – 20/12/79	**DTC Day file:** Luxembourg matters		
15	1/1/80 – 24/3/80	**DTC Day file:** Luxembourg matters	2 inches thick!	
16	12/7/1979	**Report: on 'Normal Running Demonstration'**	1½ inches	v.technical – much in French
17	14/1/80	**Report:** on the performance of the CIRCE applications during 2980 Normal Running Demonstrations of 3rd – 15th December 1979 with notes	About 30	Some notes in French
18	Around 1980?	**Report by DTC:** On line data bases of the Commission of the European Communities	Approx 12	2 copies
19	May 1980	**Addendum to Contract between EEC and ICL Belgium**	5	

LEO papers in Sheen: BOX No: 4
Mostly EEC Luxembourg Project

Catalogued by hjtc January 2016

No.	date	Paper	pages	comment
0	**Jan – July 1970**	**DTC Day file**	**2 inches thick**	
1	**Dec 1971**	**ICL New Range Introduction Strategy – submission to DTI**	**36**	**Secret**
2	**Dec 1971**	**ICL New Range Introduction Strategy – submission to DTI supplement**	**10**	**Secret**
3	**1972**	**Profile of DTC as Manager of New Range Support Organisation and Job**	**2**	**Includes photo**

		Charter		
4	**1974**	**Various papers – on overtime pay, pricing also Lessons of a Conversion Study on New Range**	**About 20**	
5	**21.2.1975**	**Papers for Computing in Government seminar at St Leonards on Sea, including papers delivered**	**Appro x. 50**	
6	**Septembe r 1975**	**File of Reliability papers for 2900**	**1½ inches**	
7	**February 1976**	**Systeme CRONOS pour la gestion des series chronologique**	**41**	**In French**
8	**13.8.1976**	**File of papers on 2900 Marketing and System 4 User Group**	**About 20**	
9	**Jan 1977**	**2900 Configuration Summary**	**4**	
10	**19.2.1977**	**Bound report CAP Sogeti on Conversion**	**200?**	**In French**
11	**28.2.1977**	**File of papers on Communications Facilities for EEC**	**About 70**	
12	**March 1977**	**Correspondence between Central Computing Agency and ICL re 'Value of 2900'**	**10**	
13	**March 1977**	**Mixed file: on EEC contracts**	**1 inch thick**	
14	**April 1977**	**File of papers on EEC liaison re 2900**	**About 30 plus**	**Focus on site preparation**
15	**Novembe r 1977**	**Five Year Plan : Bridging Services Organisation**	**Appro x 50**	**Including flow charts on New Range**
16	**Nov 1977**	**File of papers on negotiating with EEC re computer in Luxembourg**	**50**	
17	**December 1979**	**Report on the 'Final Normal Running Demonstration'**	**1½ inches**	**Possibly duplicate of file in Box 2**
18	**23.5.1980**	**Contract: EEC Contract no EEC/H/09 'The Provision of a 2976 Computer Facility'**	**Appro x 30**	
19	**Jan 1977**	**File of notes and papers relating to EEC project incl a network project paper**	**1 inch thick**	
20	**Jan – April 1977**	**File of notes and memos relating to EEC project engineering and hardware issues incl diagrams and a full sheet of proposed layout of M/A room**	**1 inch thick**	**Input from Gilbert Foix, ICL France, Luxembourg**
21	**Sept 77 – June 1980**	**Kirchberg Bulletin – complete set of Journal of**	**1 inch thick**	**Includes business and**

		the EEC Project for all ICL participants		**social aspects of the project**

LEO papers in Sheen: BOX No: 5

Catalogued by hjtc January 2016

No	date	Paper	pages	comment
1	**September 1982**	**Report to Software Administration and Revenue Board**	**Appro x 20**	
2	**March 1983**	**File of notes and transparencies: software orders, revenue an margins**	**1 inch thick**	
3	**1983**	**NZ Post Office – file of technical papers**	**Appro x 25**	
4	**1983**	**Correspondence file on NZ Post Office project and DTC's contract**	**12**	
5	**1/9/83**	**Agreement for Supply, Installation and Maintenance of Data Processing Equipment and the provision of software and associated services between the Postmaster of NZ and IC (NZ) Ltd.**	**86**	
6	**1983/4**	**File of letters about NZ Savings Bank matters incl some diagrams**	**1 inch thick**	
7	**2000**	**Planning file for 50th anniversary celebrations – memos and action lists**	**2 inches thick**	
8	**2001**	**PR file on the 50th anniversary containing many chronologies of early computing and articles**	**Nearly one inch thick**	**Potentially very useful!**

LEO papers in Sheen: BOX No: 6
Very early stuff- feels like handling history!

Catalogued by hjtc January 2016

No	date	Paper	pages	comment
1	unknown	**Typescript of Chapter 7 Analysing Clerical work for LEO –** annotations in handwriting by DTC	50 plus	No clue as to what the whole document was nor other bits of it!
2	1951 -3	**File of notes, some handwritten of meetings re use of LEO** – incl Simmons to Geoffrey Antony Salmon re use of	10	

		LEO, and notes on timing and start dates of various jobs – incl payroll, teashops, etc and Premium Bonds		
3	August 1952	**Trial Technique** – a technical paper with sets of results	10	
4	June 1953	**Flow charts on A4 tracing paper**	10	
5	April 1953/June 1952/May 1951	**Paper: Checking errors in printed output by use of codes and duplicate printers, Use of a self-checking code on LEO (John Pinkerton)** **Checkable code for printed results (DTC)** **Self-checking codes (TRThompson)**	Approx 15	References to coding used by EDSAC
6	June 1954	**More on checking – Suppression of 15 character on programme tape, Matrices, , conversion of long numbers**	Approx 15	
7	1954	**LEO loading hours -for payroll, teashops, Orchard House, tea blending, wholesale bakery, ice cream and bakery**	approx 15	
8	February 1955	**Outline flowcharts for Wholesale Bakery Invoicing**	5 charts	
9	9.5.1955	**File: How the Synthesis orders are used**, incl tables and flow charts	Approx 20	
10	Sept 1955 – Jan 1956	**File on payroll charges** including long lists of jobs and times	10	
11	1956 - 1963	**Northampton College of Advanced Technology, Islington, London –** Flyers on various lecture series including computing. Text of Lecture: **The Application of Electronic Digital computers and calculators to Accountancy, Costing and Managerial control,** Lecture by DTC with Leo Fantl on **application of digital computers to chrystallography**	Approx 20	Very interesting indeed for anyone looking at early education in this field. The College is now part of City University which was founded in 1966. Perhaps they might be interested?
12	October 1956	**File of papers on: Journey planning for ice cream delivery, computer application discussions, stock control - The Tea stores Job,**	20-30	Includes a punched card and some record slips for tea blend job
13	October 1956	**The Electronic Office –** a bound collection of articles assembled by the Liverpool and	?30	**Very interesting indeed – should be useful for**

		Merseyside Branch of the Office Management Association after their conference in April 1956. Includes contribution from **DTC 'Experience of a General Purpose Computer' and by Oliver Standingford on 'Using a Computer service'** and **'Multum in Parvo' - his summary of papers and discussions at the conference.**		**anyone looking at this period in the uptake of computers.** **HJTC has held on to this pro tem**
14	17.4.1957	**Journal Proof – text of ' A Discussion on the Use of Electronic Processing Equipment'** held at the Royal Statistical Society – contributors from HM Treasury, DTC, Rolls Royce, Gallup Poll – points raised by Mr Berners-Lee (Ferranti)	Galley -proofs 8 pages	
15	1958 - October 1960	**File of papers: Work-loads of staff 1958, Mathematical Section workload 1958, Meeting with Shell-Mex Oct 1960**	Approx 12	
16	February 1959	**Mixed file: Notes of lecture to HM Treasury, Feb 59, notes on tour of Wills in Nov 59, List of Principal Secretaries who attended talk on data processing Jan 64**	Approx 12	

LEO papers in Sheen: BOX No: 7

Catalogued by hjtc January 2016

No	date	Paper	pages	comment
1	**August – Dec 1969**	**Day file**		
2	**August – Dec 1970**	**Day file**		
3	**January – April 1972**	**Day file**		
4	**May – August 1972**	**Day file**		
5	**Jan – July 1974**	**Day file**		
6	**July – Dec 1975**	**Day file**		

LEO papers in Sheen: BOX 8

Catalogued by hjtc May 2016

No	date	Paper	pages	comment
1	Aug 1950	Manilla folder: **Calculating Reciprocals**	20	

		'Modification of Orders whose addresses are specified relative to locations in other stages of the programme or to any other prescribed location'		
2	Jan 1951	Manilla folder: **Programming general**. Some articles and lecture notes. E.g. Supervisors Manual. The technique of Office Management	40 ish	
3	Jan 1951	Manilla folder: **Trainees notes**. Clerical work in relation to Materials and production		Relates to cake bakery
4	Jan 1951 and Nov 1954	Manilla folder: **Test programmes.** Tests, faults etc.	10-12	Charts on patterns etc.
5	Oct. 1951	Manilla folder: **EDSAC Sequences**	10	
6	1952-3	Manilla folder: **Programme Errors** . Mostly handwritten and with list of types of errors.	10	
7	1/11/51	Manilla folder: **Subroutine technique.** Typescript of a draft with some pages in DTC's handwriting.	20 plus	
8	May 1952	Manilla folder: **EDSAC Micro-programming**. Notes on a colloquium at Cambreidge on EDSAC II	2	
9	August 1953	Manilla folder: **Initial Input Orders :** Notes by DTC on Programme reading, Programme Input Method	10	
10	June 1954	**Manual costs under LEO and orthodox systems**. Detailed breakdown of all costs	20 ish	
11	1955/56	Manilla folder: **Inland Revenue PAYE Schedule D** – details of work on tax tables. Visit of TRT to Somerset House.	20 ish	
12	1955, 56, 57 mixed	Manilla folder: **Lectures – General.** Typed and handwritten by DTC.	1 Inch thick	e.g. Some remarks on Data Processing on LEO. An Introduction to Programming etc.
13	April 1957	Blue Leo Computers folder: **Leo Computers Ltd Training Course for programmers and Operators**	15 pages	Timetable for course – and course outlines.
14	April 1957 – 196316	Manilla folder: **Assorted lecture notes** and letters regarding training.		TRT, DTC,
15	April 1958	Blue Leo Computers folder: **North Thames Gas Board Rental accounting Job Plan**	1 inch thick	Section : How LEO does the job. Includes some handwritten notes.
16	July 1958	Blue folder: **EDSAC Notes** on a colloquium July 1958 and on John Pinkerton's visit to EDSAC	20 ish	

17	Sept 1958	Manilla folder: **Invoices this quarter.** Itemised bills for computing work done – labour and materials.	Half inch	
18	Oct. Nov 1958	Manilla folder: **Leo Computers Ltd Invoices**. Itemised bills for work done at Elms House fro other firms – e.g British Oxygen, Fords etc.	20 ish	
19	January 1959	Blue Leo Computers folder: **Renold Chains Limited Sales Procedures Job Plan Volume I**		
20	January 1959	Blue Leo Computers folder: **Renold Chains Limited Sales Procedures Job Plan Volume II**		
21	April 1959	Blue Leo Computers folder: **Renold Chains Limited Production Procedures Job Plan Volume I**	1 inch thick	
22	April 1959	Blue Leo Computers folder: **Renold Chains Limited Production Procedures Job Plan Volume II**	1 inch thick	
23	May 1959	Blue Leo Computers folder: **Report for Renold Chains Limited** Prepared by JP Halpin	50 pages approx.	
24	July 1959	Blue Leo Computers folder: **Eagle Star Insurance Co Ltd Specification for level premium group pension scheme take-on and renewals Volume II LEOII/1** Landscape format – detailed data for inputting.	I inch thick	Has specimen pages and pro-formas/
25	July 1961	Blue Leo Computers folder: **Renold Chains Ltd. Pilot scheme for production procedures Job Plan : Volume One**	Three -quarter inch	
26	July 1961	Blue Leo Computers folder: **Renold Chains Ltd. Pilot scheme for production procedures Job Plan : Volume Two**	Quart er inch	Mostly flow charts
27	July 1963 onwards	Manilla folder: **New computer systems – memos on New families of computers** with costs by JMMP , CW Woodall	20 plus	

LEO papers in Sheen: BOX 9

Catalogued by hjtc: June 2017

No	date	Paper	Approx. pages	comment
1	12.10.51	**Check routines –** checks to programmes, part hand-written. Manilla folder	C20	Incl a memo from August '49
2	20.6.52	**Planning a Programme – Job (C 14)**	15	
3	12.53	**Tea shop orders** (very detailed)	15	Insight into food in the 50s – list of all products
4	6.54	**L.2 Tea shop orders**	20	Managemen t info. – lists of major alterations
5	54-55	**Leo Initiation Course –** syllabus. timetables and content with programming e.gs	30	
6	11.55	**Systems Research Method Summary** L.5 Wholesale bakery invoicing. Weekly routines – details of despatch methods.	20	
7	1955	**Wholesale Bakery Invoicing L.5 Method summary**	Half inch!	specimens, detailed charts, some samples
8	undated	**LEO Requirements of a clerical job** L5 Wholesale Bakery Invoicing. Specimens and schedules. Revision 1. Specimen folder		Hand – written samples of forms.
9	8.55	**LEO Job Requirements Statement** . L5 Wholesale Bakery. Direct sales by reps. Invoicing		Includes proformas
10	9.55	**Ice Cream Journey Planning and Sales Statistics** 8/9/55 (Green folder)	10	Specimen charts
11	12.56	**I.T.C (Imperial Tobacco)** John Gosden's report re visits to Bristol. V detailed. Also details of a Mathieu paper cutting machine		Smells of tobacco. Includes charts.
12	55-56	**Teashops orders – detailed costing**	20	Specific savings cited.
13	4.56	**Tea-buying Control . L4 Job Requirements**		A very clear and neat dossier
14	undated	**Tea Blending Job Requirements.** Specimens and charts		
15	56-60	**Management minutes.** Anthony Salmon/Simmons/TRT/Tony Barnes/ DTC/John Pinkerton	1 inch thick	
16	57-58	**LEO Trading Analysis**		

		Detailed budgets on forms		
17	12.59	**Programming Progress report. New Jobs – lists of firms using LEO II**	20	
18		**Setting LEO to Work – Programming a Job (Pay roll)**	30	
19	9.62	**LEO III Training Courses. CLEO I Exercise on batting averages for a cricket club.**	15	Includes pro-formas
20	11.63	**J Lyons and Company Personnel and Training Bulletin** (pale green folder)	8	Moral thoughts on training
21	1964	**New Range Product Planning Integrating LEO III with KDF 6 and 9**		

LEO papers in Sheen: BOX 10

Catalogued by hjtc: June 2017

No	date	Paper	Approx. pages	comment
1	unknown	**The Layman's Guide to LEO –** author not stated. In a black leatherette binding	25	With diagrams
2	1955	**Wholesale Bakery Invoicing** L5A Main Daily Job Specimens	6	
3	1955	**Wholesale Bakery Invoicing** L5B Daily Cash Balance Specimens		
4	1955	**Wholesale Bakery Invoicing** L5C Compilation of Cash Colletion Lists Specimens	6	
5	February 1956	**Draft Job Specification L1 Payroll**		Unbound copy
6	March/April 1958	**Summary of Visits made in the USA by DT Caminer and JMM Pinkerton**		
7	January 1959	**Report for The Dunlop Rubber Company**		
8	January 1959	**The Renold Chain Company Ltd** Sales Procedures Job Plan Volume 1		
9	April 1959	**The Renold Chain Company Ltd** Production Procedures Job Plan Volume 1		
10	February 1959	**Ministry of Pensions and National Insurance** Specifications for Payroll Part I Sections and Notes		
11	February 1959	**Ministry of Pensions and National Insurance** Specifications for Payroll Part II Schedules and Specimens		
12	July 1959	**British Oxygen Gases Ltd**	1 inch	Bound blue

		Edmonton Works Job Plan Volume II Control Jobs	thick	folder with charts
13	July 1959	**C.A. V. Ltd. Specification for Payroll E56**		
14	October 1962	**Kayser Bonder Ltd.** Specifications for Retail Outlet. Accounts and Statistics		
15	Undated ?1968	**American Diary John Aris** Dates seem to point to 1968 but not stated anywhere.	unbound	

PAPER CUTTINGS, JOURNALS AND MAGAZINES – AND PRINT-OFFS
(non-originals listed in italics)

List compiled by hjtc Jan 2016

Date/Issue	Title	Relevant content
June 1983	**Newsdesk –** the newsletter of ICL New Zealand	**Item** on winning the NZ Savings Bank business
1993	**ICL PLC Corporate Report 1993**	24 page glossy sales brochure
November 1999	**Computer Weekly Supplement** **IT@2000 – 50 years of information technology**	**Timeline** lists 1951 LEO performs the world's first commercial calculation for Lyons and Co in the UK Article (4 pages) by Nicholas Enticknap **'Not just another good idea – the invention of digital computing** – photo of LEO and other early computers **Article** (7 pages) by Julie Vowler **'We've come full circle' – a brief history of the IT department** – section on LEO, contributed by Frank Land
Feb 2000 Volume 10 Issue 1	***IMIS Journal**** ***HC has original***	***Back to Basics –interview with DTC*** *on programming discipline 4 pages – 4 copies*
10/8/2001	***Evening Standard***	*Article* ***PCs celebrate 20 years on the beat*** *by Ross Davies photo of DTC*
31/5/2001	**The Times supplement Tomorrow's Today**	2 page spread p 20-21 on **Development of computer from LEO I to a (sort-of) tablet! Includes picture of LEO I**
20/8/2001	***Financial Times***	*Article* ***'The lion that failed to roar' Leo. The first business computer gained little recognition*** *says Fiona Harvey*
Autumn 2001 Vol VII No 3	**Convergence - The Wall Street Journal's**	David Caminer analyzes **what went wrong with one of**

	magazine of Digital Business	**the world's first computers, the LEO** by Richard L. Hudson 1 b page
Feb 2002 ISSN 1366-6851	**Project Manager Today (2 copies)**	**Photo of LEO I on Cover** **The Day LEO Roared** – DTC on the world's first business computer (3 pages)
Dec 2002 Vol 13 No 6	**Computing &Control Engineering Journal**	**LEO and the Computer Revolution** by DTC – text of Pinkerton Lecture (8 pages)
Feb 2003	***IEEE Computing and Control Engineering Journal***	***A Modern Real-time Software Design Tool – Applying Lessons from LEO*** *by Ferdinand Wagner an Peter Wolstenholme 5 pages*
May 2004 Vol 5 No 5	***Journal of the Association for Information Systems***	***The legacy of LEO – lessons learned from an English Tea and Cake Company's Pioneering Efforts in Information Systems by Richard O. Mason*** *Typescript of 'final version' of text – 44 pages also Photocopy that gets v faint by the end! Approx 20 pages*
unknown	Typescript of Review	**'Carry on LEO'** Review of **'A Computer Called LEO' by Georgina Ferry** by Antony Bryant, Leeds Metropolitan University
Unknown: post 2003	**Data ??** **Possibly Data Management**	**Article 'This mad – What, me worry?** A history of LEO among an article on how operating systems grow out of control. Photo of DTC and John Simmons by Ivo Vegter 3 pages
2007	**BCS - Celebrating 50 Years** **Illustrated booklet**	**Chapter 'Birth of an Industry and the BCS'** features Maurice Wilkes, photo of LEO I and potted history of LEO. Quotation by DTC 'Maurice Wilkes is one of the heroes of our nation and one of the most uncelebrated.'

Memorabilia etc.

1985	Newspaper – The Times?	Death announcement for John Simmons
?	Envelope	Collection of LEO programming sheets