

## **BOOKS**

### **Books about LEO**

- ← 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 excited 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."

**Professor Paul Ceruzzi**, Smithsonian Institute Washington

"Most surveys of the history of computing mark the beginning of the commercial computer age with the delivery of the first UNIVAC in 1951. The better ones note the first delivery of a UNIVAC to a commercial, not government, customer (General Electric) in 1954. Only the best histories mention LEO, a computer built by the British catering company J. Lyons & Co. and first operational in September 1951, as the real beginning of commercial application of the stored-program computer."

← **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**

- 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
- Ahmed, Haroon (2013) '**Cambridge Computing - The First 75 Years**', TMI Publishers.
- Anon, (1962), **Automatic Programming Languages for Business and Science**, a two-day conference held at Northampton College of Advanced Technology with the co-operation of the BCS.in April 1962. T.R. Thompson presented a paper on considering the fundamental principles for expressing a procedure for a computer application independently of any compiler or computer considerations. The Conference papers are reviewed by LEO's J. Caldwell.
- 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.
- Arms, William Y, (2019), **Early Years of Academic Computing**, Cornell University, Internet University Press. The memoirs include a brief account of the LEO story including a photo of LEO III. See <http://www.cs.cornell.edu/wya/AcademicComputing/text/titlepage.html>
- ← 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](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 Rechentechnik (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.

- Bruderer, Herbert: **Milestones in Analog and Digital Computing**, Springer Nature Switzerland AG, Cham, 3<sup>rd</sup> edition 2020, 2 volumes, 2113 pages, 715 illustrations, 151 tables, English version.  
<https://www.springer.com/de/book/9783030409739>

- 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’** (2<sup>nd</sup> edition), MIT Press. Reports on the role played by Lyons and LEO in the development of business computing.
- Davis, G.R., Editor (2005), **Management Information Systems**, in the chapter **‘History of Organisations using Information Systems’** notes on page 147 UK enterprises including Lyons and LEO but mistakenly states Lyons worked with Manchester University not Cambridge University. Volume 7 The Blackwell Encyclopedia of Management.
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- Glass, R.L., (199), **In the Beginning: Personal Recollections of Software Pioneers**, pages 134 – 153, published by IEEE Computer Society, Los Alamos, CA, includes Land, F.. **LEO the First Business Computer: A personal recollection, Frank Land.**
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- Glass, R.L., (2020), **In the Beginning: Personal Recollections of Software Pioneers 2.0**, published by Developer Books, Hogansville, GA, Chapter 5: **LEO the First Business Computer: A personal recollection, Frank Land**, pp 249 – 288 and brief biography of Frank Land, pp 611 – 613.
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- 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>

Greenia, Mark, (2021), Mark writes: “I found a 1966 film about the LEO III in Manchester, which I posted to my site. I include a link to your LEO 1 History video in the description section for people to follow if they want the early history” See [https://www.youtube.com/watch?v=H\\_0Astp1dEU](https://www.youtube.com/watch?v=H_0Astp1dEU)

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.

Haigh, T., Ceruzzi, P., (2021), **A New History of Modern Computing**, an updating of the earlier book by Paul Ceruzzi, includes reference to the Lyons and LEO story as the first business computer. Published by MIT Press. See <https://mitpress.mit.edu/books/new-history-modern-computing>

- 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.
- Harding, Thomas, (2019), **Legacy: One Family, a Cup of Tea, and the Company that Took on the World**, *Penguin Books*. **Legacy** charts the rise and fall of one of the most influential dynasties in British history through the lives of five astonishing generations; both sweeping and intimate, it is a story of sacrifice and selflessness, betrayal and personal tragedy, and Empire and its cost. Included in the story is a brief account of the origins and development of LEO, the decision to found LEO computers Limited as a subsidiary company, and the later decision to dispose of the subsidiary. The book allows the reader to peek behind the scenes at the way the members of the family which ran Lyons operated  
<https://www.penguin.co.uk/authors/1071513/thomas-harding.html>
- 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. <http://programmedinequality.com/>

- Hollingdale, S.H. & Toothill, G.C., (1965), **Electronic Computers**. Penguin (Pelican) Books, London. This early book on the history of computers includes a number of references to LEO. See pages 230 and 281-282, and a photograph. It is a brief but accurate account noting payroll and teashop ordering. What is also interesting, in a book published in 1965, is the absence of any mention of war—time computing in Bletchley or any computer innovations outside the USA and UK. A surprising number of pages are devoted to analogue computers. A second edition was published in 1975.
- **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](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.

← Lavington, S., (2019) **Early Computing in Britain, Ferranti Ltd. and Government Funding, 1948 — 1958**, Springer Computer History Series. A valuable addition to the exposure UK computing developments in the early years of computers with a focus on

the initiatives taken by the Ferranti Company, in particular with their Mark I. LEO is only referred to in Appendix D, see

<https://www.springer.com/gp/book/9783030151027>

- Lean, T, (2016), **Electronic Dreams: How 1980s Britain learned to love the computer**, Bloomsbury/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.
- Mathews, S., (2007), **From Agit-Prop to Free Space: The Architecture of Cedric Price**, Black Dog Publishing, London, U.K., 2007. 285 pp. Cedric Price a "visionary" architect: one whose schemes were grand was hired by Lyons to propose a radical redesign of one of its Corner Houses. In practice Lyons decided that they could not afford the re-design. The book makes a number of references to LEO including photos of a LEO installation.[tcoteEast](http://tcoteEast)
- ❖ MOD Secrets of Eastcote Government Office Site: **The Customs Excise Years**. (In 1947, under the inspiration of TR Thompson, Lyons, the firm of tea-shops, started - with remarkable foresight - to take a serious interest in applying digital computing to their accounting and office work generally. By 1954, LEO (Lyons Electrical Office) computers carried out 3 commercial jobs for Lyons - the bakeries' payroll, calculation of production and schedule dispatch to 150 tea shops, and the provision of management information.)
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The the earlier Elliot 405 was replaced in 1963 by the tenth LEO 3 ever built. It was housed in H Bay (thought by many to have been originally intended as the location for the Operating Theatre had D-Day proved more widely injurious), and, being a very advanced and powerful machine for its time, it aroused so much interest that a glass wall was built around it to allow for a viewing gallery. Data input was via Hollerith punched cards (rectangular holes, and 80 columns), and paper tape. At this stage the purpose of the site's computing power was purely for Census Office work, but later the Department's Payroll system was computerised and run on the LEO, a huge undertaking. The LEO worked until 1971/
- Morelli, M, (2001), *Dalle calcolatrici ai computer degli anni Cinquanta*, Franco Angelstoryi, pp. 341-44 se
- 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.
- Rahman, W., Kurien, P., (2007), **Blind Men and the Elephant: Demystifying the Global IT Service Industry**, Chapter 5: *Early Business Computing*, pages 106 – 107 provide an account of the LEO story including a review of the legacy of LEO and a picture of a Lyons teashop on page 108. Published by Sage Publications India PVT Ltd, New Delhi, and by Sage Publications Inc in Thousand Oaks, California, and by Sage Publications Ltd, London
- 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.
- Shirley, Stephanie, (2012), '**Let IT Go**', Andrews UK Limited. The book is Dame Shirley's autobiography and as such deals with much more than her involvement with IT and the establishment of Freelance Programmers. It is included in this listing because the formation of F. International, overlaps the foundation and growth of LEO Computers and provides a further perspective on developments in that period. It also notes the help given to her by Kit Grindley (see obituaries below) in the early days of her company.
- 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.
- Sumner, R., (2020), **I Ideas: How Ideas Shape Your World, Your Creativity, and Your Technology**, Kendal Hunt publishers. The publication is about the relationship between ideas (philosophy, Christianity) and art/technology. The intended readership is graphic design students, but is also used a general education class for some students. Chapter 10, *The Computer, Animation, & Gaming* includes a photo of LEO I and a brief account of the building of the first business computer by J. Lyons & Co. The author, Ron Sumner is an artist a Professor at Liberty University in Florida.
- 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 12 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.

← Wilkes, M.V., (1985), **Memoirs of a Computer Pioneer**, MIT Press, History of Computing Series, In his chapter on EDSAC he talks about Lyons, starting with a visit to Cambridge by TRT and others in July 1947, mentioning George Booth, the £3,000 donation and loan of Lenaerts and ending with Lyons' appointment of John Pinkerton, pages 132 - 134 . Archived in Dropbox  
<https://www.dropbox.com/scl/fi/onljte5kdi9hml38ofyxf/Maurice-Wilkes-Memoirs-LEO-extracts.docx?dl=0&rlkey=ha09dhstzsk322m0v4b3vbj6b>

← Williams, M.R., (1989), **The early British Computers Conference**, MIT Press, Cambridge, Mass.

← Various authors (1956) '**The Electronic Office**', a collection of articles assembled by the Liverpool and Merseyside 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.

← Various authors, Williams, M.R., (1989), **Charles Babbage Institute reprint series for the history of computing**, a comprehensive listing of texts relating to the history of computing,  
<https://www.worldcat.org/search?qt=hotseries&q=se%3A%22Charles+Babbage+Institute+reprint+series+for+the+history+of+computing%22>

