

# LEO COMPUTERS SOCIETY

Newsletter and Review

ISSUE SUMMER 2015 Vol.2

## 64 Years

1951—Leo I Operational

## LEO AROUND THE WORLD



LEO III/7 at J. Lyons & Co., London

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## Message from our Chairman

Dear member,

Having produced one successful newsletter in the Autumn of last year, our editor Bernard, is now attempting to raise the bar a little higher. There are some fascinating stories from LEO's early years, including Bill Sant's amusing recollections into computing at Customs & Excise. Gloria Guy takes us back in time to 1952 at both Lyons and LEO. Everyone knew their place and management was fairly strict but Gloria clearly enjoyed her time there.

LEO was an enterprising company and sold its computers with great success in such far off places as South Africa and Australia. Perhaps its bravest and least known move was to tackle sales in Eastern Europe at the height of the Cold War. This newsletter is largely devoted to stories from a few of the key personnel who were fortunate enough to be involved in those early and exciting years.

It was over two years ago when David Holdsworth, encouraged by John Daines, took on the challenge of resuscitating the LEO III software. We managed to recruit several volunteers to help him with this huge project and they have been beavering away typing up code and testing the results. David reports on his progress later in the newsletter. We are still looking for CLEO listings, anyone know where we might find any?

I must express my heartfelt thanks to all those members who have been so generous in your donations/voluntary subscriptions. This will help us with general running of the Society. Committee members come from various parts of the UK and they sometimes generously waive the cost of at least part of those journeys. The funds will enable us to properly compensate them. This will also help us relocate our website to a more viable provider and thus enable us to introduce additional facilities.

## Peter Byford

On the subject of funds I would also like to thank the AIT (Association for Information Technology) for continuing to support the Society and the scholarship that we support at Middlesex University. The scholarship is for computer science graduates or undergraduates and is given in the name of David Tresman Caminer, whom I'm sure you all aware was both a LEO and Computer Industry preeminent pioneer.

Middlesex University is keen to further collaborate with our Society to establish a research project in the area of History and Philosophy of Computing. This will look at the way J Lyons conceived LEO and the effect of LEO on the Computer industry. It will also consider how the LEO historical documents and artefacts can be protected and archived for the future. This may require additional funding from the Lottery Heritage Fund to complete the recording of LEO documentation.

Frank Land, John Pinnington, Colin Roach and Frank Skinner, helped Warwick University at the recent Cheltenham Science festival. LEO was used as an example to teach youngsters and others something of the history of computing. Warwick University are also enthusiastic about collaborating with the Society. The John Simmons papers covering invaluable material relating to the development of LEO are held at Warwick. Most of the LEO texts are digitized and available to scholars and other interested parties. John Simmons was Chairman of LEO Computers Ltd and the senior Lyons executive who sent Thompson and Standingford on their historic mission to the USA in 1947.

As you can see we continue to ensure that LEO, its achievements and its influence on the British computer industry are understood and rec-



orded. Our work will facilitate the understanding for future generations studying the history and development of the Computer Industry.

As many of you are no doubt aware Frank Land is chairman of our history subcommittee. As well as managing the history projects he has continued to do a magnificent job in maintaining the LEO bibliography. This holds a record of documentation, articles and books etc. that refer to LEO Computers in some way.

One of the major areas of our work, as you know, is the Oral History project which is now under the management of Mike Storey. You will see this pushing forward in the near future. The documentation side of LEO history is a large area in itself.

We are also trying to get a plaque erected to commemorate LEO I. Unfortunately Cadby Hall, where it was built and ran operationally from 1951 to 1965, no longer exists. Some of the other Lyons buildings in the area are still there and there is a street called Lyons Walk where Cadby Hall once stood. Mike Tyzack is carrying out the research on this project and making all the relevant contacts, so hopefully we may get some sort of plaque erected. We will let you know how we get on.

We have once again booked our next Reunion at the historic Middle Temple. The date is Sunday April 10th 2016 – so please start planning to go there now. Sorry, a little more about the need for financial assistance. We are looking for spon-



Cadby Hall, Hammersmith. circa 1983

#### **Notes on Peter Byford.**

Peter decided in the first year of 6th form that getting a job was better for him than further education. He was offered jobs in banks, insurance companies and as a quantity surveyor. All needed further exams and frankly sounded boring. He accepted a job at LEO Computers Ltd as a programmer in 1961, when 17 years old. He enjoyed programming and systems analysis, despite the often long hours (without overtime). A keen sportsman, without much ability, he did play for LEO and Lyons second team at cricket. In 1964 he organised the winning LEO team for the Lyons Pennant day (a multi sport event against other Lyons departments). When LEO was merged with English Electric, a cricket match was arranged between the two companies. Peter was asked to assist "Mr Caminer" with the team organisation. The LEO team had 6 or 7 West Indians in the side, who worked at Minerva road (whatever happened to them?), including Winston Jackson a fast bowler (he later played for Middlesex seconds). The English Electric team boasted that they would "wipe the floor with LEO". Many of them played in semi-professional teams "up North". They didn't know about Winston! He opened the bowling, at 14 for 7 wickets our Captain, Mick Mears, took him off to make a game of it. LEO went on to win the match.

sors for the Reunion to keep costs down and to enable us to add more displays and, perhaps Video booths, so that members can record reminiscences of their LEO days. This event will celebrate the 60th anniversary of the first order of a LEO Computer. If you have any contacts who might be interested in providing sponsorship please us know, Ralph Land is heading a group looking at sponsorship options.

I won't apologise for repeating what I said in our previous Newsletter. If you have LEO items, do let us know, even if you wish to hold onto them. Please consider leaving them to the Society in your will. We undertake to catalogue them and deposit them to the most appropriate location, usually, Manchester University, Warwick University or TNMoC at Bletchley Park.

LEO continues to get a reasonable amount of coverage in some parts of the media. This is largely because of the efforts of the Society. We have had items on TV and in two BBC Radio 4 programmes. We will always try and let you know when we are on going to be "on the air".

As you can see we are doing a lot of work to protect the LEO history and to keep the name of LEO in the public eye. I know I have said this before but if you find you have spare time and would like to help us please let me know. A lot of the work needed can be done from home and the more people we have the easier the tasks become.

The change of the company's style, as a result of the merger, and the loss of the Lyons club sport and social activities prompted Peter to move on. He went on to work as a Programming team leader or system analyst at a number of companies & consultancies before joining British Gas Eastern in 1971 initially as a programming team leader. In over 25 years his roles included systems analyst, quality assurance manager and data manager.

Around 1980 Roy Farrant, who had organised several LEO reunions, "passed the baton" to Peter. Thirty-five years later ..... He says he was and still is supported by excellent committee members over the years. If anyone wants to takeover he would have Peter's blessing.

During his period at British Gas he was, for a few years, Technical manager of the ICL User conferences. After leaving British Gas in 1996, he became a self employed data analyst, finally retiring in 2005.

Peter is married with two children. His daughter and family live in Melbourne, Australia - including two granddaughters. His son and family in the UK - including 3 year old twin granddaughters

Peter's hobbies include family history and home winemaking (he founded the Ware Wine and Beer Circle in 1978). He plays indoor bowls, badminton and golf, although none of these very well.

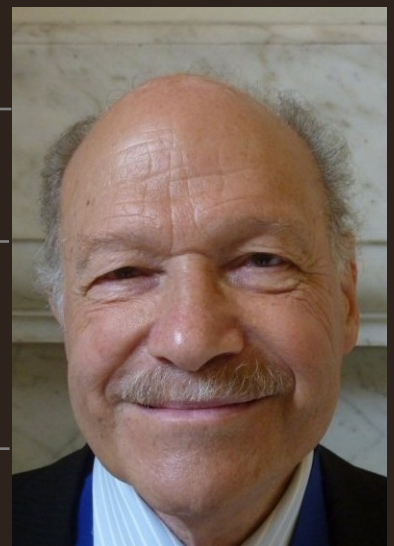


Lyons Walk in London Borough of Hammersmith

# LEO in East Europe by Ralph Land CBE

Fascinating article as Ralph Land reflects on the complexities of doing business in East Europe at the height of the Cold War.

*The author, Ralph Land became responsible for developing the market for computers in Eastern and Central Europe during the early days of the expansion of the Computer industry. In his article, he describes LEO's successful entry in to that market to take a leading position ahead of the well-known competition, for a period of about 20 years, primarily due to achieving a deep understanding of the special features driving this market during the Cold War and thereby the ability to meet the needs of the market.*



## 1. Introduction

In November 1951 J. Lyons Co Ltd, one of Britain's foremost food and restaurant businesses (Bird, 2000), announced and demonstrated the world's first commercial computer application running on an in-house computer called LEO: LYONS ELECTRONIC OFFICE. LEO was in many respects an unexpected success. Following this announcement, many of Britain's major industrial and commercial companies together with several Government Departments purchased LEO Computers.

The story of LEO has been well documented, (Bird, 1994, Caminer et al, 1997, Ferry, 2003, Land, 2012). LEO is now widely recognized as the world's first commercial digital computer. Its technical achievements and especially its application experience are well known, as are the subsequent failure to counter the strength of competitors, primarily IBM, which led to attempts to consolidate the British Computer industry through a series of mergers. The English Electric Computer Division already incorporating Elliot Automation was merged with LEO to form English Electric LEO Marconi (EELM) and some years later, under strong government pressure a hoped for British winner was created by merging the strongest British Computer Company ICT with EELM to form ICL( International Computers Ltd)

Less well known is the story of LEO in the Soviet Union and the nations of East and Central Europe, comprising the Soviet dominated Warsaw Pact countries, known as COMECON plus Yugoslavia. The market was very different from that of the West, providing a series of exceptional problems and opportunities.

Success depended on understanding these; taking advantage of the opportunities and finding ways of overcoming the problems.

In 1964, on the basis that I could speak a foreign language (German), LEO's then Managing Director, T. R. Thompson, asked me to take on the role of Export Manager, this for a company that had virtually no export business outside the successful LEO Companies in South Africa and Australia. However, I had the good fortune to have attached to me Daniel Broido then Chief Mechanical Engineer of LEO.

Broido had been a refugee from Russia following the Bolshevik Revolution in 1917. He first moved to Germany, where he completed his technical education, and then came to London in the 1930s. He worked with a number of companies on document reading before being recruited by Lyons and LEO in 1954. Broido was a pioneer in mark-sensing, leading to the design and development of the Lector Document Reader and subsequently the Autolector, the on-line version.

In Russia, Broido's father had been a leading Menshevik, a moderate left-wing party that had led the Revolution, subsequently overthrown and eliminated by Lenin and the Bolsheviks. Nevertheless, Dan had kept himself well connected in the Soviet Union and with a number of the Russian satellite countries.

It had always been his view that the Soviet Union and the Warsaw pact countries provided a unique opportunity for LEO. He had already demonstrated this, by introducing LEO to potential customers in Czechoslovakia where the National Railways and the Ministry of Social Security had duly purchased large LEO 3 systems, followed shortly after by NHKG a major steelworks in Ostrava.

The decision then to concentrate our non-Commonwealth exports, initially, on the 'soft underbelly' of the European Market was self-evident and proved to be a remarkable success.

## 2. Background - the Market

The East and Central European Market consisted of COMECON (the Soviet Union and its satellite nations), plus Tito's Yugoslavia. During the Cold War trade with those countries was limited and restricted for two main reasons. In part COMECON countries were self-isolated from the West and focused on a determination to trade within the bloc, aiming at economic self-sufficiency, (Kaser, 1967, Zwass, 1989, Cortada, 2008). The other reason was the Cold War and the western Strategic Embargo set up by COCOM (the Co-ordinating Committee of NATO) to prevent the export of goods to the East that might have a military use, or if used for civilian purposes, had a military dual use capability (Mastanduno,

1992). The Soviet Bloc countries, in consequence of these policies, found it difficult to keep up with global developments in technology and were chronically short of convertible foreign exchange.

Although theoretical work on computing had been highly developed in academic projects, computer design, manufacture and usage increasingly lagged behind that of the West (Hally, 2003, Malinovski, 2006). By the sixties the development of a range of computers had barely reached the level of LEO 1 and LEO 2 produced in the fifties. Stalin had totally underestimated the potential of computers and only modest research and development funds were allocated to the new industry in successive five-year plans, in contrast with the efforts and achievements of the bloc in the Space Programs in that period. In due course the weaknesses in computer developments were to become a major impediment to their Space Program too.

By the time Broido had succeeded in opening the Czechoslovak market with the sale of two large LEO 3 systems (2x360, 1x 326) in the late sixties, a number of small, early model western computers had been installed in Russia and other COMECON countries – these included very early German Zuses, Elliot Automation 503 ,803 and 4100 Series, Ferranti Pegasus and Mercury, PDPs, IBM 1401, and later IBM 360, ICT1300, English Electric , KDP10, KDF8 and KDF6

It was becoming clear, that under normal conditions, especially given the needs of centrally planned economies, the demand for computing equipment could, as Broido had foreseen, be considerable.

### 3. Particular Features of the Market

#### 3.1 Foreign Trade Organisations

Within the Soviet Bloc, in sharp contrast to a typically Western market, all purchasing of computers was concentrated in the hand of branches of the Ministry of Foreign Trade through specialised Foreign Trade Organisations. The FTOs were monopoly buyers, staffed by professionally trained negotiators, usually with a foreign language but a limited understanding of the products they were responsible for purchasing on behalf of the ultimate end user.

To be successful we had to be able to become skilful negotiators capable of coping with all the stratagems thrown at us by the buyers.

#### 3.2 Permitting Imports of Computers

End users management had to go through a long and complex process to obtain permission to acquire an imported computer, which required the permission of their responsible Minister, who in turn had to have the approval of (a) the State Committee for Science and Technology, (b) the Ministry of Finance to ensure that foreign exchange was allocated for the purchase, (c) Gosplan, responsible for the planning of the Economy and, in particular, the five-year plans, and (d) the Security Services to ensure that the equipment could not be used for non-approved purposes and were installed in a secure environment. At one time we counted that fifteen signatures were required before negotiations to purchase a computer could commence.

It was not unusual for the final signature granting the award of a contract to purchase a computer from the West had to be made by a Deputy Prime Minister.

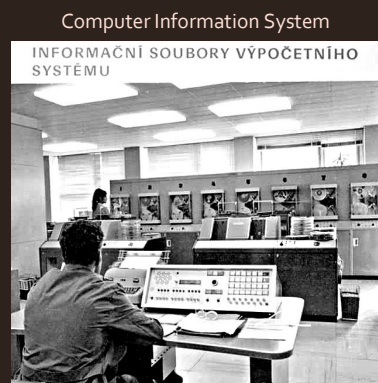
#### 3.3 Negotiating Contracts

The time required from first consideration of a data processing project, requiring a more powerful computer than generally available in the Soviet bloc, to specification, to the internal selling of the project, to receiving the necessary authorization, to start the final negotiations leading to a contract, could be a number of years. The contract negotiations themselves could be equally protracted. Over this period we would have little or no contact with the end-user. The only real understanding of their requirements depended on the experience of applications by our staff and the limited knowledge of the FTO negotiators

A typical contact would include detailed schedules of air conditioning equipment, spare parts delivered with the equipment, generally sufficient to last for three years, as estimated by our engineers, provision of training for the end user staff partly on site or in our training schools set up in the branches, but more often in our training facilities in the UK.

One significant business advantage the potential Western vendor had was the knowledge that, once they had been invited to the FTO to come and negotiate the purchase, the FTO had the necessary authority and means to pay for the purchase. Another, reflecting the lack of development of commercial law, was that the Ministry of Foreign Trade were prepared for the Contracts to be executed under the commercial conditions of the supplying countries, or more often, under the commercial laws of selected countries such as Britain or Sweden.

Nevertheless, the negotiations were always tough and protracted and not necessarily successful. We sometimes negotiated with the knowledge that a competitor might be negotiating in the room next door. On one occasion, I was invited to negotiate three separate contracts



LEO III/41 in Czechoslovakia

simultaneously for key Ministries over the Christmas period, knowing that each end user had been allocated currency for the current year and had to complete the purchase before year-end. In fact three FTO teams sitting at separate tables or sometimes in different rooms called me to negotiate paragraph by paragraph. It was rather like playing simultaneous chess.

### **3.4 Surveillance of our staff.**

The western computer companies trying to establish themselves in this market had to be aware that they and their staff were under close surveillance. In practice this was a kind of industrial espionage designed to glean as much knowledge as possible of our computer technology, very much in advance of that available in the Soviet Union at that time. At the same time, we were under strict rules from COCOM to limit the passing of advanced technological information to the Soviet Bloc.

## **4. Developing the Market**

### **4.1 Local branches**

We recognised quite early, that to become effective, long term suppliers of computing equipment, understanding the market and implementing effective contracts, it would be necessary, progressively, to establish a presence in the market by opening branches in each in each of the fifteen countries of the Soviet bloc. Each branch would have to have Sales, Customer Support Service Engineers and Training staff and thereby learn and understand the requirements of the market, its opportunities and challenges.

For example, following Broido's breakthrough success in selling two LEO systems in Czechoslovakia we opened Branch offices in the then Czechoslovak cities of Prague, Bratislava and Brno. To underscore our determination to stay in each market, we staffed our branches mainly by locally recruited and trained personnel, supported by UK engineers and systems specialists, sometimes expatriates of the country concerned. However, in Yugoslavia we used a large local Agency company, NACIONAL, representing a number of important western businesses. Their EELM business was supervised by a LEO Manager, John Durham.

Over the next few years, we opened similar local Branches in all the other Soviet Bloc countries once we had established a base of sufficient sales and installed computers to justify the cost. By the early seventies, we had an organisation in the Soviet Union, mainly in Moscow, of some 30 staff and their families, having set up only the second ever registered British office authorised by the Soviet Union. Our total number of staff in the bloc ( USSR, Poland, Hungary, Czechoslovakia, Romania, Bulgaria plus Yugoslavia and Albania) numbered some 120 personnel plus their families.

This was in sharp contrast to all the other western computer companies seeking to open and penetrate this market. They mainly used their German or Austrian offices, situated primarily in Vienna, to send sales personnel to the Soviet Bloc on an opportunistic basis. IBM, however, set up an HQ, ROECE, near Vienna specifically to develop these markets, employing at its peak some 2500 people achieving limited success.

As few western companies operated by opening a branch network, it became essential to establish ground rules for operating within the bloc. The governments required us to obtain permission not only to recruit local Russian staff but also allocated offices and accommodation for expatriate staff. This turned out to be extremely complicated and difficult, given the mutual suspicion and restrictions on both sides during the Cold War.

### **4.2 Building the team**

In recruiting UK staff expected to live for a number of years in a difficult environment, we decided that it would best to recruit married staff, some with young families, on the basis that a family was likely to be more stable and in a way self-sufficient. The positions were attractive to some of LEO's more adventurous staff, mainly men

Few understood the conditions under which they would be working and living in a Communist country at that time: poor accommodation, frequently in hotels providing strange and inadequate food, limited facilities to allow them to cook in their rooms, constantly under KGB surveillance, very poor shopping facilities and little activity for spouses and families. Health and education services were also not what Brits were accustomed to either, although one of our engineers survived harrowing conditions in a Moscow Hospital following peritonitis. Stress could be considerable – after the UK expelled 105 Soviet from the UK the children of our staff attending the School at the British Embassy, had to be handed out of the windows of the school to their anxious parents in the face of hostile crowds outside the school.

Nevertheless, the success of an assignment depended usually on the wife's ability to live in that environment. I developed the custom of interviewing the wives to give them a picture of what conditions for them might be like for them, as well as the job applicants who might be enthusiastic about the opportunities and forget the hardships. In the event, some simply could not find it possible to live under the restrictions imposed by the system, others perhaps became too close to the Communist regime and posed potential security risks, but the majority accepted the conditions.

Some of our most successful managers were or became great linguists, frequently having graduated in Slav language studies. Sepp Leimgruber

and Nick Wynn each were fluent in some twelve languages; a number spoke Russian and most had some French, German or Spanish. I decided to acquire a language laboratory, hire trainers to enable staff going on assignment to have at least a smattering of the language they required.

A number of staff developed interesting and highly successful careers on returning to the UK. John Durham, Manager of the Yugoslav branch, became a successful software developer and entrepreneur. Alexander Dembitz, Manager of the Hungarian Branch, set up a company to become the leading supplier of Bank software to International Banks. Alec Nacamuli, after his tour of duty in Moscow, became the key member of the team that developed the Swift bank fund transfer system. Juergen Kraus, manager of the DDR branch, became a very effective entrepreneur in Germany. John Bradley, after his period as the deputy manager of the Moscow branch, became a senior official in the European Commission based in Brussels. Others including Jan Bielak and Moshe Peled used their counter trade experience in their subsequent careers. Don Riley, who had been the first Manger of the Moscow branch, subsequently founded the brilliant Chocolate Factory Theatre in Southwark as well as becoming a successful property developer. Roger Landau managed the Czechoslovak Branch married a Czech girl and later became an expert of Indian Culture and ended up as successful Farmer in Britain. Dick Browne our Manager of the Polish Branch was a West Indian with a Polish mother spoke fluent Polish and had been an Air Force Officer and Pilot before joining EELM. Roger Annett a regional manager responsible for a number of our countries later became a successful author of a number of books describing some of the almost forgotten wars of the world war in Burma and Borneo where he had been active as a pilot in the aerial supply of our troops.

### **4.3 Networking**

As part of the drive to understand the market – their needs and motivation – as well as to become widely known, we networked as extensively as possible, through participation in governmental trade missions, exhibitions, receptions, Chamber of Commerce events, travelling and visiting companies and decision makers. Exhibitions were sometimes crucially important, especially as officially sponsored exhibitions were frequently provided with funds to purchase the exhibited goods. These became major efforts. In Prague the first large computer exhibition INCOMEX in 1968 we sent over 100 of our staff to cover the 6 weeks of the exhibition to demonstrate our serious intent following Broido's first successes there.

### **4.4 Counter Trade**

As a consequence of the trade policies seeking self-sufficiency within the Soviet bloc, there was a perpetual shortage of convertible foreign exchange. It soon became clear that if we were to grow the market significantly we would need to participate in a form of exchange called "Counter Trade", (Stevens, 1995). This was a form of business derived from the more primitive trade known as "Barter".

Counter Trade was a form of business that enabled importers short of convertible currency to purchase goods and services they needed by offering, instead of payment, goods and services in exchange. These were frequently in surplus or difficult to sell through normal channels. Although an inefficient method of conducting international trade, Counter Trade created possibilities of business which would otherwise not have been possible.

We were under continuous pressure to buy a range of exotic products, such as Trained Falcons or Racing Camels (to resell to rich Middle East Princes), various horns to grind up into medicines, and a wide variety of handicrafts all of which we tried to avoid. We did try to import miniature Electric Motors which turned out to be unreliable. Specialist companies in Counter Trade offered to take these types of products but at unreasonable prices.

We persisted and set up our own Counter Trade activity led by Moshe Peled hoping to avoid loss and seeking to limit the risk of trading by only buying what we knew we could on-sell. We succeeded, for example, by identifying a small Bulgarian vineyard making a good quality red wine, which we were able to sell to social clubs and for events at home. We purchased large quantities of ball bearings in from Romania for the British motorcar Industry. We pre-financed a film to be made at the famous Czech film studios near Prague in order to supply a large System 4 to Prague Municipality. Hungary was able to produce computer cabinets to our specification. We purchased hanging baskets in Bulgaria for flower arrangements which were sold to Garden Centers and even Municipalities. When electric and electronic typewriters displaced manual typewriters we found a ready market for small manual machines made in East Germany and Bulgaria.

### **4.5 Co-operation**

We were always under further pressure to help the Soviet Union and its satellites to reduce the technological gap between them and the West. We were willing to be supportive, provided the assistance was within COCOM rules and ensured, especially during the Cold War, that we would not provide any form of potential help to their military capacity. Problems arose over technologies that were essentially civilian but had a possible military dual use. All these issues were negotiated in some detail with the relevant government departments in Britain and the US.

We modified a System 4<sup>1</sup> computer that fell completely within the technical parameters defined by the COCOM regulations and offered it for sale, not surprisingly without much success. On the other hand, we were permitted to supply a powerful KDF9 system for the Institute of High Energy Physics, partly staffed by International Scientists, demanding access to powerful state of the art computers, because, with the co-operation of the Russians, we were able to satisfy COCOM that the use of the computer was not in breach of the regulations, by providing our

Ministry of Technology with regular analysis of the computer output and the contents of its store.

As mentioned in the Introduction, in the early days of the computer industry Russian research and thinking about computer concepts was reasonably advanced and sometimes ahead of the West, (Hally, 2003). Early computers with similar computing power as LEO 1 were produced in significant numbers, but almost totally lacking efficient peripherals.

For a considerable time design and manufacture of reliable storage, for example chip-based, as well as printers, magnetic tape and drums, remained rudimentary. This was largely, as stated before, because of the lack of understanding by Stalin of the potential of computers with a consequent shortage of resources allocated to the industry and to research. In due course, under the leadership of the State Committee for Science and Technology and the Academy of Sciences, the problem was recognised and the USSR Government was persuaded of the urgent need to catch up with the West.

Although there was a strongly argued opinion that the Soviet Union needed, for security and economic reasons, to become self-sufficient in Information Technology, a decision was taken, against strong pressure from hard-liners, to acquire already developed technology from the West, (Malinovski, 2006, Graham, 1998). At this point, the offer of co-operation by LEO, and later by ICL, to provide some technology and assembly rights became attractive to influential members of the decision making bodies, and in particular to Deputy Chairman of Gosplan, Rakovski and Deputy Chairman of the State Committee for Science and Technology, Gvishiani. However, by then the overwhelming dominance of the IBM 360 series in the west became the target for the Soviet Bloc and led to the defeat of the self-sufficiency group and those wanting to work with LEO/ICL.

Accordingly, a new plan was developed for the bloc, in which all members of the Warsaw Pact would be allocated specific areas for the development of the Industry. The major task was the development of powerful computers to rival the systems of CDC and IBM. This was allocated to the Soviet Union, but key roles for a range of computers and peripherals were allocated to the DDR (East Germany) with major plants in Dresden and also, perhaps more surprisingly, to Bulgaria, mainly in Plovdiv, for smaller computers, disk systems and electronic typewriters.

The new plan was implemented by smuggling a number of IBM 360 systems via the DDR to Russia, Bulgaria and elsewhere, to become the basis for the bloc's computer industry. In the event the hardware was emulated reasonably effectively but slowly by reverse engineering, although poor manufacturing techniques and high fault rates impeded success. In the meantime the attempts to emulate the software, systems, languages and applications proved to be much more difficult than expected, leading to long delays in the project implementation.

## 5. Conclusion

Despite the prestige and marketing strength of IBM and at least partly because of the Cold War attitude by the US, we became the dominant supplier of computing equipment from the West to the Soviet Union and its satellites in the twenty years between 1970 and 1990. I believe this was primarily because of our understanding of the vagaries and needs of this particular market. Our computers were installed in the key branches of Government and Industry throughout Eastern Europe and the area became a profitable market for LEO, EELM and ICL.

It has sometimes occurred to me that if, during the Cold War, as result of incipient conflict, we had stopped supplying spare parts for our installed computers, it would have caused chaos in the centrally planned economies of the Soviet Bloc.

*Ralph Land*

*January 2015*

<sup>4</sup>System 4 was developed by English Electric LEO Computers Limited following the merger of LEO Computers Limited with the English Electric computer interests, See Wikipedia:

[http://en.wikipedia.org/wiki/International\\_Computers\\_Limited#English\\_Electric\\_LEO\\_Marconi\\_.28EELM.29](http://en.wikipedia.org/wiki/International_Computers_Limited#English_Electric_LEO_Marconi_.28EELM.29)

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### **Notes on Ralph Land.**

Ralph Land and his twin brother Frank came to Britain with their parents in 1939 as 10 year old Jewish Refugees from Germany. Following evacuation and Grammar School, Ralph took a degree in Economics at The London School of Economics, specialising in International Trade. After a short period in the Economics Research Division at LSE he joined Lyons, firstly becoming Management Accountant for the Teashops Division then moving to LEO and appointment as Bureau Manager and then Export Manager. He was appointed as Export Manager of LEO in 1964 which made him responsible for developing the market for computers in Eastern and Central Europe including the Soviet Union. As the article shows, the rest of his career was spent developing exports to those countries

Subsequently, in 1976 Ralph joined Rank Xerox to manage their substantial Eastern European Export division and after retirement was recruited as Director of East European Affairs by Rolls-Royce Aerospace. Increasingly, as an acknowledged expert on East Europe he became advisor to the UK Government's "Know How" Fund, a Governor of the Westminster Foundation of Democracy a frequent lecturer on Business covering Counter Trade and Negotiating Technique and an Honorary Fellow of SEESS (School of East European and Slav Studies) now part of UCL. He served on many Trade missions to Eastern Europe and was the Chairman of the Russo-British and British-Romanian Chambers of Commerce for a period of 9 years each. In 1985 he was awarded an OBE for Services to Exports and a CBE in 1995.

## **LEO in South Africa by Norman Witkin**

**Norman Witkin recollects the early days at 36 Anderson Street, the HQ of the newly established LEO Computers located in the then heart of the financial district of Johannesburg.**



LEO Computers was established as a computer service bureau company in Johannesburg, South Africa in 1959/1960. As its core resource, the company featured the LEO III, recognized then as one of the most powerful data processing computers in the world. What was the history behind the formation of this formidable technology-leader in computer services?

I was not party to the discussions that led to the establishment of the South African LEO Computers business. However, as an early-hire employee — I was hired on as a junior programmer a few months after its inception — I did soon learn that Rand Mines, Limited, the company's owners, and a leading gold mining and industrial conglomerate in the country, had been searching for new data processing solutions to improve and support their administrative functions. Their prior data processing systems had reached limits of capacity and usefulness.

In establishing the LEO Computers service bureau, Rand Mines provided itself the vehicle to meet its own data processing needs along with those of its subsidiaries. And incidentally, the new company's charter enabled it to offer services to third party companies as well.

It is instructive to recall that the era for using Electronic Accounting Machines, EAMs, to process 80-column "Hollerith" punched cards, ended in the late 1950s and early 60s. For decades before, punched cards had been pivotal as the storage medium for recorded data. EAM sorters, collators, and tabulators, processed the punched cards. Programming these machines was done by plugging patch-cords into plug-boards to select card-column fields of interest. The selected data in the cards were then sorted and collated, and the results tabulated (printed or listed) on paper. Entire data processing systems were built on this paradigm.

The sheer scale of the data processing operations presented challenges to Rand Mines' administration. The numbers of applications, and the volume of cards, increased relentlessly with continued business growth. The practical day-to-day problems were in the punching, and then machine reading and rereading of tens of thousands of cards.

Three applications in particular challenged management:

- Payroll — its volume of paychecks was so large that even simply printing them was a daunting task every week.



- Stores, where the objective to not run out of stock had to be counter-balanced with the objective to not be overstocked. Constant streams of transactions recording quantities withdrawn from, or added to inventory, manifested in stacks of boxes of punched-cards, created, augmented, sorted, and collated daily.
- Share Transfers, to record the ownership of shares in the many gold mining and other companies, and to produce thousands of dividend cheques for stock-holders, quarterly.

All the subsidiaries of Rand Mines' gold mining and other industries had similar data processing experiences and challenges. All needed roughly the same complement of data processing machines. New applications pushed expectations beyond what was reasonable for systems where punched-cards were used for data storage. The time had come when EAM-based systems could no longer accommodate the newer data processing requirements — simply, the upper-bound to their use had been reached.

In South Africa at the time, the primary purveyor of data processing equipment was Hollerith Machines Limited, later International Computers Limited, ICL. IBM was its close at hand competitor. While alternative successor equipment solutions had no doubt been proposed to Rand Mines by ICL and IBM, we can reasonably assume that none was found acceptable.

Fortunately for Rand Mines, comparable challenges had already been faced overseas. Large companies in the U.K. and North America recognized that their data processing demands exceeded what then-current equipment could address. Indeed, in the UK, (as is of course well known to us!) the J. Lyons Tea Company was itself compelled to design and develop "in house" capabilities to meet its own data processing challenges. This resulted in the first Lyons Electronic Office (LEO) computer. The hallmark distinguishing this product from earlier genres of machines was, arguably, its large "magnetic core memory" in which programs were run. The internal memory was augmented by data records stored on removable reels of magnetic tape. A standard 2400-foot long reel of half-inch wide magnetic tape housed the equivalent of over a quarter-million punched cards. External peripheral tape drives processed these records in a fraction of the time it took to read the equivalent number of punched cards.

It is now company lore that, after demonstrating that its prototype machine could successfully handle their data processing tasks, the Lyons board of directors formed a company — LEO Computers Limited — to manufacture and market systems commercially as a business. Other companies, like Ford Motor at Dagenham and Aveley, and British Oxygen at Edmonton, availed themselves successfully of its new technology, the LEO data processing computer. Word of this success reached equipment-procurement decision-makers in far-flung reaches of the world, like Johannesburg.

I do not know whether Rand Mines bought a Model LEO III computer outright, or established a joint venture with its manufacturer, the U.K.-based LEO, when it set up the Johannesburg service bureau. From my observations of the ensuing management style, I guess a joint venture was formed. The top managers of Rand Mines were often seen on the premises of their new subsidiary. Mr Michael Hay and Mr Christiaan de Groen Watermeyer, Board members of Rand Mines, were frequently at 36 Anderson Street, Johannesburg, the location for the company's offices, and home of the air-conditioned "fish-bowl" site for the computer. Mr Peter Pirow, a senior manager in the Rand Mines hierarchy spent many hours in the new company's building.

As an aside, I cherish a fond memory of Mr Watermeyer. He once accompanied a group of employees on a road-trip to promote the new company in various cities. One afternoon he took about four of us as his guests to the Durban Country Club golf course. He himself was a champion amateur golfer. All of us were rank beginners but he was absolutely unfazed by our feeble attempts to hit the ball. I remember his delight in sharing the sport with us. He made it look so easy!

LEO in the U.K. committed itself whole-heartedly to the support of the new South African company. Evidence of this was the high level managers it was prepared to staff from its own ranks, the qualifications of these assignees and the substantial durations of their tenures in South Africa. The post of General Manager and the upper level managerial positions were assignees from the U.K. company.

The first General Manager was Leo Fantl. Everyone addressed him as Mr Fantl. (Reciprocally, I remember him addressing me as Mr Witkin — a heady title for a 20-year old!) Mr Fantl organized the company into four departments, Sales, Programming, Operations, and Engineering. These departments were headed by employees brought in from the UK. At some stage Brian Mills, Malcolm Mears, and Michael Joseph headed Sales. I think Ninian Pier Derby Eadie did too. Joe Crouch headed Programming. Graham Limpkin headed Operations, and Lou Wetherill, Engineering.

Human Resource departments today may be astonished to learn the generous nature of one of the fringe benefits offered all employees at that time: an annual vacation of 37 days. This was extended to 90 days once every three years, or, alternatively to 180 days once every five



LEO III/2 being commissioned at Minerva Rd. before being shipped to Johannesburg.  
L. to R. Lou Weatherill and Frank Wroe.  
Senior Commissioning Engineer, Tony Morgan.

years. I heard that this benefit was originally negotiated in order to attract UK-domiciled employees to do stints of duty in South Africa in the first place. The benefit allowed them to return home temporarily after extended stays in South Africa.

The overall size of the Company numbered about sixty individuals. The majority were programmers. Most were hired in South Africa after passing locally-conducted aptitude tests originally developed in London. I list the names of those I remember! — Bob Day, Dick Williamson, Tony Routledge, Tom Rozwadowski, Jules Martin (sp?), Liz Weymouth, Faith van Rooyen, Peter Burman, Fred Lovett, and John McKinnell. Bob Kaye was hired in Operations.

As for applications, the “staple” mines-based applications were Payroll, Stores, and Share Transfers (and dividend processing). Initially, programming was done in Intercode.

These applications were well suited to processing by the LEO III. But so too were other less traditional applications like Survey Traverses, Ore Reserve Calculations, and the Linear Programming for Paper Roll Trim Minimization for South African Pulp and Paper Industries, SAPPI. It would have been difficult if not impossible to design systems for these applications on the predecessor machines. Later, newer applications were implemented in CLEO, the COBOL-equivalent language.

Also, as if to underscore the radical departure from punched card technology, the data entry medium chosen for the new applications was different — paper tape. Sales people at LEO were pleased to trot out statistics to potential Customers showing that paper tape costs were significantly lower than the costs of Hollerith cards — by roughly an order of magnitude! Also they argued that capturing data on paper tape was more reliable: not only did it have a verify phase (as, indeed, punched card data capture did) but additionally it featured a third “scrutinize” phase to confirm that the correct corrective actions were taken during the verify phase.

The South African company’s name changed several times during the 1960s. This followed LEO UK acquiring, through merger or acquisition, various UK computer companies. These included Marconi Computers and English Electric. While the service bureau’s activities in South Africa remained essentially the same, its name changed to reflect the changes — ultimately ending up as “English Electric LEO Marconi Computers.” Employees familiarized themselves with the capabilities of the new computer products such as English Electric’s KDF6, KDF9 or KDP10 computers, but I do not recall occasions where we offered services from the widened product line.

No discussion of any South African company’s operation in the 1960s could be complete without describing the effect South Africa’s apartheid laws had on labor. The LEO Computer Service Bureau activities were of course subject to the laws of the land. The Industrial Conciliation Act, or Labour Relations Act, 1956, formed part of the apartheid system of racial segregation. Its clauses legalized the reservation of skilled jobs to white workers. Whites benefited from this Act because the Act gave legal force to white job reservation practices.

The programmers and engineers in LEO’s Service Bureau were whites. On the Operations side at LEO, the legal constraints were less clear, and the barriers reserving jobs were perhaps greyer (!) For example, inside the “fishbowl”, operators in laboratory coats mounted and removed the magnetic tape reels on and from drive units, and maintained the backup files. Here, black employees were employed alongside white colleagues. Mr. Alex Mbatha was an operator in this labor capacity. He once told me how much he liked his job. He added that he sought a better future for his children, and had sent them to skin-color-blind Southern Rhodesia (now Zimbabwe) for better schooling and career opportunities.

From today’s retrospective, I believe that Mr. Mbatha was able to do this because he was earning a reasonable wage. That was assuredly not the rule for the vast majority of Africans employed in other companies in the country that time. So, for this, and for its enlightened management, I tip my hat to LEO’s leadership. The style of management and mode of operation of LEO Computers in South Africa from inception in the early 1960s and then throughout that decade, was efficient, effective, courteous — and fair.

The **LEO** website  
[www.leo-computers.org.uk](http://www.leo-computers.org.uk)

*further interesting details about visits and visitors to the site.*

By Bob Stevenson

We continue to get interesting Google statistics about the Leo website.

Compared with the 3 months stats in the last newsletter, the 3 months Jan – Mar 2015 showed an increase in the number of sessions from 850 to 1018. The number of Users went up from 559 to 786 but the average session duration stayed about the same at 2 mins.57secs.

There were visits from 54 different countries, although quite a lot were for 1 visit of almost zero duration, and presumably made in error! But there was a solitary visit from Saudi Arabia that lasted 22 minutes and viewed 3 pages. Liechtenstein had 1 user also, but that person viewed 12 pages.

UK naturally had most visits at 644 but the list of cities with most visits had a few anomalies:-

<b>London</b>	<b>193 visits</b>
<b>Preston</b>	<b>22</b>
<b>Pangbourne</b>	<b>20</b>
<b>Ottawa</b>	<b>18</b>
<b>Wembley</b>	<b>16</b>
<b>Reading</b>	<b>15</b>
<b>Brighton</b>	<b>14</b>
<b>Chichester</b>	<b>14</b>
<b>Edinburgh</b>	<b>13</b>
<b>Norwich</b>	<b>11</b>

#### Anomalies

- *How did Ottawa get to be 4th in the list of otherwise all-British locations?*
- *I know how Preston came 2nd – my daughter-in-law was recently teaching her class in Preston about early computers.*
- *But why Pangbourne? Anyone know a Leo contact who lives in Pangbourne?*

Bob continues to maintain our excellent website. Ed.

Bob Stevenson was LEO II/5 operator and LEO III/1 Operations Manager at the LEO London Computer Bureau. Stayed with Leo through to Baric and 1900 and 70-45 operations at Newman Street; then left to continue in Operations and later Systems Analysis for various other organisations.

I am happy to say without reservation that I believe that was a legacy of the leadership and distinct imprimatur of General Manager, Mr. Fantl.

I feel honored and privileged to have been part of that history.

#### **Notes on Norman Witkin.**

Norman Witkin grew up in Johannesburg. He is a graduate of the University of South Africa with a B.Sc. in Mathematics and Mathematical Statistics and has an MBA from Cal. State University at Northridge.

He started his career in computers at the youthful age of 16 as a programmer of the HEC 1201, a 1K-word magnetic-drum based vacuum-tube computer made by Hollerith Machines. It was the first computer in the South Africa and possibly the first in the entire continent. He was elected as the first Secretary of the newly formed South African Computer Society.

In 1959 he joined LEO Computers in London at Hartree House, Queensway, Bayswater. A year later, he was transferred back to South Africa to program commercial applications, and provide systems programming support, for the newly-formed LEO Computer Service Bureau, subsidiary of a large mining-company conglomerate in Johannesburg.

In 1968 he joined RCA's Computer Systems Division in Cherry Hill, New Jersey. Computers were all the rage and RCA declared that computers were as strategically integral to the Company's future in the 1970s as colour television had been for it in the 1960s. Notwithstanding this pronouncement, RCA bowed out of the computer industry in 1971.

In the 1970s Norman returned briefly to South Africa to co-develop the operating system for the SyFA minicomputer system based on Computer Automation hardware. The company moved to California in 1975 to become CA's Computer Systems Division. The company had the potential for becoming another DEC or Apple.

Subsequently he joined Mitsubishi Electric as product manager for data storage devices, ranging from floppy disk drives to hard drives, optical devices and library units. At Control Data and Imprimis, he was Director of Marketing for the large disk division.

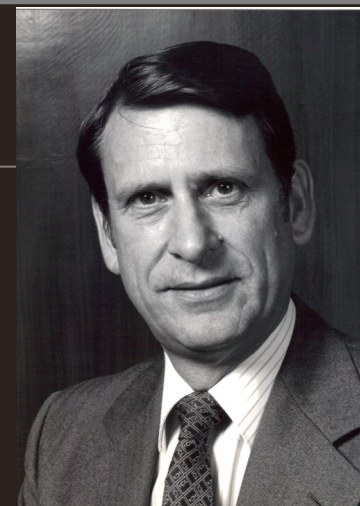
Norman is now retired. For the past 20 years or so, he has been working in Intelligent Transportation Systems. Soon after the cold war ended Hughes Aircraft (later Raytheon) engaged him as a consultant to assist in their diversification efforts — converting some of their military technology for commercial applications. He helped form the Hughes Transportation Management Systems unit. One carry-over of the technology was RF transponders used in electronic toll roads.

In between he has taught and presented seminars on data communications and wrote a data communications textbook ENTERPRISE NETWORKING for information systems professionals

Norman and his wife Adrienne, a retired teacher, have lived in the United States for the last 48 years, 40 of them in Orange County, Southern California. They have a son, daughter and three grandchildren.

He remembers his Hartree House years with much fondness, the very special chemistry that existed and the wonderful relationships that developed working with, amongst others, Ray Hennessy, Colin Tulley, John Aris, Adrian Rymell and Sheila Milne.

## Reflections of LEO Computers in Australia by Neil Lamming



The history of LEO Computers in Australia of course begins in the UK. Let me set the scene at the beginning of my own involvement.

My interest in computing and in LEO Computers were first aroused by Doug Comish in early 1960. Doug, already with LEO, came to the University of Bristol to talk to the Mathematical Society, of which I was then the President, about the emerging computer industry and LEO's leadership position. He and I also talked a bit about cricket and a bit about football! As a result I joined LEO Computers in Hartree House after graduating later that year. I deem myself very fortunate and privileged to have lived and worked through this extraordinary period in the history of computing.

My first several months were spent as a member of the E41 team, working to add the new "Graduated Pension Scheme?" system to the Glyn Mills Army and Air Force Officers payroll programs. Other members of the team included Bernard Pierce, Mary Coombs (then Blood) and Mac (George) McLeman. I particularly remember the tough deadline, the system had to be working by the beginning of the new financial year come what may.

As an instant expert, I do recall having to help give the LEO II Programming course to the next batch of graduates, before being selected for early LEO III training. I was then assigned to Bernard Pierce's programming team to write the Renold Chains Production Control System programs, a major assignment.

At the successful conclusion of this assignment I was fortunate to move to Australia with LEO, leaving London in December 1962. I have some clear recollections of those early days in Sydney which may be of interest to some but I must acknowledge that my memory is less than perfect, I apologise to those whose names I have forgotten and for all errors and omissions! Anno Domini I fear.

I guess it all started with an order from Tubemakers Australia for a LEO III. In those days Tubemakers was an affiliate company of Stewart & Lloyds who had installed LEO II/3 at Corby in UK in May 1958. They were a very positive user, a great reference site and instrumental in Tubemakers placing an order with us. The arrangement was for LEO to establish a subsidiary in Sydney which would buy back the second shift for its own marketing and service bureau purposes.

This brings me to Peter Gyngell. Peter first impressed LEO management in UK while he was working for a user, the FORD Motor company, which had installed LEO II/4 in December 1958 at Aveley. Indeed it was FORD who had run the first computerised payroll on LEO I back in December 1955. A graduate in philosophy who had also spent a year at RADA (Royal Academy of Dramatic Art) along with such as Kenneth Williams, Peter was an inspired choice to join LEO to establish a subsidiary in Australia. My recollection is that he first visited Australia in 1961. I do remember him returning to London on a visit and an enthusiastic presentation he made in the Boardroom on the opportunities he saw in Australia.

Certainly Peter, Jean and their one son at that time, Julian, their second son Stuart was born in Sydney in late 1963, had their home in St Ives, Sydney by 1962. Peter was joined in Sydney by Colin Baker and his new wife Gerry. Colin transferred from LEO in London at the beginning of 1962 to provide Peter with programming and systems support on a 12 months assignment.

For my part, Australia was English speaking, cricket playing and sports mad, enough said? I was also fortunate in that Tubemakers sent 3 personnel to the UK to be trained as programmers (Graeme Smith, Bob Bender and Graham Nichols if I remember correctly) and they worked in the office where I was a "back-to-the-wall" programmer. I also had an Australian in my programming team, Rosslyn Sorenson who hailed from Melbourne. So I gained first-hand exposure to Australians!

Then as luck had it, Cec Lockhart and Chester Jones from Shell Australia came to London as part of a worldwide trip to see what was happening in the data processing world. Chester brought with him a pack of data cards from their large punched card system in Melbourne and he wanted a program written to validate and analyse this data. I was given the job, David Caminer even vacated his office so that I could maximize my productivity to meet their very tight deadline before they left to visit USA. They were duly impressed and I gained further enthusiasm for Australia.

So my wife Pat and I celebrated our first wedding anniversary on the first day of the 6 weeks boat trip to Australia! I started work in our little office in Miller Street, North Sydney in January 1963. I did not go to New Zealand as reported in 'LEO, The Incredible Story of the World's First Business Computer', indeed Leo never did have resident staff in New Zealand.

LEO Australia at that time consisted of:

- Peter Gyngell, our General Manager
- Colin Baker, who returned to UK soon afterwards, I was actually sent out to replace him
- Peter Goodrum, who had worked with Peter at FORD and had moved to Australia with his wife Maud and their then only daughter, Stephanie, to join the Department of Defence who had recruited in the UK to start up a computer activity in Canberra under Dr. John Ovenstone. Peter was particularly involved training computer staff for both Tubemakers and for LEO
- Tony Casson, an Australian who worked for LEO as a consultant in UK and who decided to return home to Australia in time for Christmas 1962
- Judy Gill who provided secretarial and admin support
- Me!

These were very exciting times for our little team. Peter with his enormous energy, enthusiasm, creativity and intellect was an inspirational leader who was making big waves in the business community.

A few weeks after arriving in Sydney, probably March 1963, it was announced that LEO Computers and the Computer Division of English Electric were to be merged to form a new company, English Electric LEO Computers. Peter promptly sent me to the English Electric offices at 365 Sussex Street, Sydney to meet their "computer people" who were to join our new company. I met Mick Norsa who after some time joined CSA (Computer Sciences Australia) and John O'Neil who spent many years with CDC (Control Data) in Melbourne. They introduced me

to their Managing Director, George Fox, who years later became a good friend and who died quite recently at age 98. I also learned that there were two guys undergoing training in the UK, Tony Montgomery (now Professor) and the inimitable Owen McKenzie. In addition Sydney University had ordered a KDF9 and John Barrett had been selected to head up the technical support for this installation.

Another key gain from this merger was Tony Weber who moved from English Electric where he had qualified as an accountant, to provide accounting expertise to our then little company. He of course had a long career with our Australian Company as head of finance and accounting.

Next to join our team was Alan Sercombe who on 13 April 1963 (we remember because it was Pat's birthday) landed in Sydney on the SS Southern Cross en route to Melbourne. I first met Alan and his then wife Gillian (who by a strange coincidence was the daughter of my history master at school in Norwich) in Coventry in mid 1961 when I was sent on-site for a few weeks to Standard Motors who had installed LEO II/8, the first core store computer made by LEO. Alan was Standard's Chief Programmer who in late 1962 applied to join LEO to come to Australia.

Peter was generating a lot of interest particularly in Melbourne and English Electric agreed to provide us with space in their Melbourne office. Pat and I moved from Sydney to Melbourne to join Alan in May 1963. So began our Melbourne Branch.

A major shock wave went through the industry in Australia when, in the space of only a few days, "lil ol' LEO" signed contracts in Melbourne, probably June 1963, with:

- Shell Australia for a LEO III to replace their IBM punched card system
- Colonial Mutual for a LEO III to replace their ICT punched card system
- H C Sleigh (Golden Fleece Petroleum) for a service bureau system to run on LEO III/8 in Sydney

This was a wonderful piece of salesmanship by Peter which prompted a telegram from the IBM rep saying: "I doffs me cap to a better salesman". He left IBM soon afterwards! Wallace Weaving transferred from LEO's London office around August 1963. I well recall meeting Wallace, his then wife Anne and their 3 children Simon, Hugo and Anna at Melbourne Tullamarine Airport, driving them to a house in Brighton that we had rented for them, and returning directly back to the airport to catch a plane to New Zealand where Peter was busily trying to sell a LEO system to the New Zealand Government and needed me to run an impromptu programming course.

Alan and I went on site at Shell. Wallace and Geoff Nicholas, who had just arrived from LEO UK, went on site at CML. Soon after Owen McKenzie with wife Marj and their children Mary, Craig and Cassie returned from UK to Melbourne where Owen became heavily involved with both CML and H C Sleigh.

Our first task on site was recruiting and training all the people needed for the successful development and implementation of systems. Not easy, you couldn't simply advertise for programmers, they just did not exist, these really were the first business computers in Australia. We had to work with the customers to identify people within their organisations who we felt had the aptitude to be successful, and train them from scratch. We were fortunate to be able to recruit Barry Hooper to join Shell from the Bureau of Census and Statistics in Canberra. I had known Barry in London where he was a programmer with CAV Ltd, a LEO customer.

To ensure the success of our customers' systems, III/8 at Tubemakers, III/15 at Shell Australia and III/22 at CML, it was vitally important for LEO to provide significant on site expertise.

Our first computer, LEO III/8, was delivered to the Tubemakers site in Botany, Sydney, I think in September 1963. It was accompanied by John King, a Cambridge University graduate who came from LEO UK to head Engineering, along with others such as Tony Joyce, Tom Cooper, Nigel Morgan, etc. Similarly Clive Harrison came out to head Operations along with Tim O'Flynn and Gary Diver. A number of talented people joined us from UK over the next few months, names which come readily to mind include Mike Shapcott, Robin Happe, Robert Timms, Richard & Helen Clews, David Jones, Beryl Hulley (now Jones), Mike Smith, Bob Elmer, Floyd Elmes(?), and many others. We also recruited and trained locally such worthy people as Ken McLachlan, Dennis Craney, John Legge, Len Edwards, Graeme Hunt, Ken Castle, Ian Semmel, Ruth Hoad, Ros Fletcher and Barry Schepisi.

In due course Owen sold HC Sleigh a KDF6 to be installed in Melbourne to replace the service bureau running in Sydney, and Shell ordered a second system, a LEO326 to sit alongside III/15.

With the change in the corporate structure in UK in late 1964 when the company was renamed English Electric LEO Marconi, in Australia we took in a local equity partner when AWA took a 40% interest leaving EELM with 60%. The company was renamed AUSTRALIAN COMPUTERS reflecting this localisation. Peter Gyngell remained General Manager and there were no changes to the field operations. AWA was a local electronics company that had built a good working relationship with both English Electric and Marconi in the UK over the years.

The SYSTEM4 range announced in late 1964 became the cornerstone product range for Australian Computers. Major System4 installations were sold and established, the largest being with the State Bank of Victoria in Melbourne. Three successive Commonwealth Government

tenders were won firstly with the Department of Supply, then with the Department of Civil Aviation and finally the Department of Customs and Excise. Other System4 customers included RMIT (the Royal Melbourne Institute of Technology) AWA and HC Sleigh.

Of course in 1968 ICL was formed which in Australia saw Australian Computers integrated with ICT and AWA bowed out. This whole period from 1962 to 1968 was a dramatic period of rapid growth which was extremely invigorating and motivating to be a part of, one of the little acorns from which grew the mighty ICL Australia.

### **Notes on Neil Lamming.**

Neil Lamming was born on 1st August 1938 in Cleethorpes, UK and attended Doncaster Grammar School and City of Norwich School. He graduated with a B.Sc. (Mathematics) from Bristol University in 1960.

Neil is married to Patricia RM (née Whiterod) of Great Yarmouth in 1961 and they have 4 children all born in Australia and 10 grandchildren.

On graduating he joined LEO Computers in London as a programmer and was transferred to Australia in late 1962 soon after LEO opened an office in Sydney.

When ICL was formed in 1968, he progressed through Commonwealth Government Area Manager, Queensland State Manager, Victorian State Manager, Southern Region Manager, and Australian Sales Manager until 1975 when he was appointed Managing Director, ICL Australia at age 37, the first to be appointed from within the Australian organization, taking over from Mike Gifford.

In 1983 appointed President, ICL Asia Pacific based in Sydney.

Neil was Director, Australian Information Industry Association 1978-1983 and its inaugural Chairman 1978-1980. He was also a member of the Commonwealth Government Offsets Advisory Council 1980-1981.

He left ICL at the end of 1988 and joined Russell Reynolds in 1989 as Executive Director to establish an executive search practice in Information Technology and Telecommunications. In 1994 he moved to Spencer Stuart, again to develop an IT&T practice.

He retired at the end of 1998 and since has travelled extensively with Pat, particularly trekking, having now completed typically 8 day treks in around 15 countries.

## **Down Memory Lane - In the Lyons Den by Gloria Guy (née Smith)**

### **Gloria Guy remembers her time with J. Lyons and LEO with much fondness.**

I joined Jo Lyons in 1952, at the age of 16 (my first job) and they put me to work in the Catering Office in Elms House after training me to use a calculator at very high speed. This skill was used to count all the bills paid by customers at Coventry Street Corner House. I thoroughly enjoyed that job but remember how formal the working atmosphere was. Everyone was addressed by their surname and we were watched every minute of the day by a supervisor (Mr. Cox). The staff canteen was on the same floor and we had an official 15-minute coffee break and a 15-minute tea break every day. I loved the rolls (baked in WX block no doubt) and had fresh cooked chips for lunch almost every day. Bliss for a 16-year-old!

There was one mishap, however. One day I was two minutes late – yes, two minutes late – back from tea break. Mr. Cox rose from his desk, looked straight at me, crooked his little finger and beckoned me over to him, where I got a good telling-off and told to make sure I was never late back again.

Lyons also owned Kent House, a building somewhere in Hammersmith. I can't remember very much about it other than it had a stage and a large area for either seating or dancing. Whilst I was in the Catering Office they held a Christmas show at Kent House and I remember going on-stage, dressed like a tramp, and singing "We're a

Couple of Swells" with one of the other girls. I also sang "All I Want for Christmas is My Two Front Teef" with my teeth blacked out. It was a fun time.

Another thing I did while working there – I joined the Lyons Ladies hockey team. I'd also previously played hockey for Hoover's, as a school friend of mine worked for them and got me on to their team before I played for Lyons. One unfortunate day I was asked to play for Hoover in a tournament and – horror of horrors – we had to play against Lyons Ladies. And "we" beat them. Needless to say, I was never asked to play in the Lyons team again!

In addition to the hockey team, Lyons also had a rowing club, with a practice tank somewhere between Hammersmith and Chiswick. I learned to row in the tank and eventually went out with an eight on the Thames. It was quite terrifying, to watch the water flowing past at a rate of knots after sitting in the practice tank without the water going anywhere. After 18 months in the Catering Office, I was promoted, against my wishes, within the department but didn't enjoy the new position or the people on the section, so I transferred to Bakery Sales in Cadby Hall, where I then trained to operate a comptometer. Slightly less formal atmosphere here, but still had to fill in a time sheet detailing and accounting for every minute of the day. Even if there

was a point where there was nothing to do, it had to be accounted for – it was called Miscellaneous Non Productive, or MNP for short. Alf Little was our supervisor and he was also a local councillor who eventually became Mayor of Fulham.

Whilst working in Bakery Sales I couldn't help noticing some of the auditors who kept going in to the department next door. It was, of course, LEO. I'd known the auditors from Elms House, since the Audit Office shared the open plan space with the Catering Office, and one of them suggested I should take a look at this new department. So one year after transferring to Bakery Sales, I decided to see what LEO was all about. My work there was what, today, would be called data entry – but I don't remember it actually having a descriptive name of any sort at that time. More training ensued, on a Siemens Schuckert machine, which enabled me to punch in all the data needed to run the payroll.

My machine punched out a binary tape, which was later fed into a checking machine that punched out both a binary tape and a printed black and white paper tape at the back. A third person (Margery Coles) scrutinised all three tapes and checked for accuracy. I can't remember what happened to the tapes after that – not sure I was ever made aware of those procedures.

One major pleasant memory I have of LEO was that when the tea lady came round in the afternoon she brought cakes with the huge urn of tea – but, joy of joy, they were FREE. LEO was a privileged office - nothing had ever been free in any of the other departments! Tony Barnes was the Manager during my time there and I remember that one day the cakes were Lyons individual chocolate swiss rolls. Unwrapped! One of my colleagues collected several for the data entry girls and put them on a small plate on top of her cup of tea. It wasn't long before all the chocolate melted and Tony expressed his disgust at the mess on the plate – but it didn't stop us from eating them! I don't think he ate any though!

In those days I didn't dare say boo to a goose and was terrified of speaking to anyone in a white coat who walked about the main area of LEO. That included Frank Land, Ray Shaw and others. TRT and John Pinkerton were also on the "terrifying" list. The white-coat exceptions were George Manley, Ernie Aylott and Frank Walker, who were the engineers most prominent to us as they were always in and out – removing cabinet doors, floorboards, valves etc. and then putting them all back when they'd found out what caused the problems. The others were all boffins as far as we were concerned. George and I became engaged for a while (he gave me an elastic band to wear!) I can also remember two or three ladies whose job it was to solder circuit boards on a permanent basis. Looking back, I don't remember their names but we did have some laughs.

I was a keen ballroom dancer even in those days and Lyons had provided us with an excellent club house in their sports club at Sudbury Hill. It was in very large grounds and we had hockey pitches, tennis courts, an open air swimming pool and once a month, on a Sunday evening, there was dancing at the club house, to a live band. Usually George and Ernie came too. I would add at this point that neither of

them could dance very well but they did try, although my patience ran out eventually. Lyons also held a beauty competition every summer, and one year the prize was a trip to Canada and a Hollywood screen test. I envied the girl who won it, but she never became famous.

After a year or so in LEO I transferred to the Works Department in Spike House, to start a secretarial job. I'd been attending evening classes to learn shorthand and typing, as I'd finally decided what I wanted to do in life. I knew there was more to enjoy in the world outside Lyons, but was sufficiently astute to know that I should get some training before attempting to gain a proper secretarial position. I won't say my shorthand transcription was totally accurate at first, but taking dictation from a man instead of a teacher was quite a responsibility, but it didn't take me long to work a fiddle in order to help myself progress!

We had targets to meet – half an hour to type three or four pages of shorthand back (not sure exactly how many) – but sometimes in the beginning I took a while deciphering the shorthand notes and I didn't like to show myself as anything less than perfect. An ego thing, surely! Once I had discovered that the supervisor couldn't read shorthand, my life improved rapidly by adding a few shorthand outlines on every line, that meant nothing whatsoever and it looked as though I transcribed more than the allocated amount!!

After some six months in the Works Department it was time to spread my wings and I handed in my notice. I was called over to WX block and given a farewell interview, at which I was complimented on the standard of my work in each of the departments (see, it wasn't only based on the fiddling bits!) and told that if ever I wanted to return, there would always be a job for me. That was a wonderful thing compared to the poor souls now who might be lucky to get a zero-hours contract and earn peanuts. Sadly, Jo Lyons & Co. Ltd. no longer exists, so I can't go back, but they were extremely good employers.

All in all, I very much enjoyed my time at Lyons and was very sad to hear of their demise. The hotels were all sold off to Trust House Forte (who, I believe, also no longer exist) and I have no idea what happened to the rest. We are all probably aware of what happened to LEO in its subsequent ownership – ICL, Fujitsu, and now just a memory with bits of it in the new Information Age Gallery in the Science Museum and other bits strewn across the country.

So much for history. It's dead and gone, but hooray for LEO and the rest of us who keep the memory alive.

## **LEO II/3 CORBY AND COMPUTERS**

Corby Heritage Centre owned by Corby Borough Council in Northamptonshire are producing an exhibition about Stewart's and Lloyd's Steel Company's LEO II computer.

The exhibition will run from 18<sup>th</sup> July 2015 to 17<sup>th</sup> October 2015.

Corby Heritage Centre is located at 75-77 High Street, Old Village, Corby NN17 1UU. The centre was officially opened on Sunday 5 June 2011.



# The Early Days of Customs & Excise Computing - Some Impressions.

by Bill Sant



Bill with prized leek.

Bill Sant recounts his time at C & E in his inimitable and jocular style.

My introduction to C&E computing was via Omnibus Weekly Order 10/1965 (remember OWO's?) which advertised vacancies for Programming Staff in the Automatic Data Processing (ADP) Unit at Southend-on-Sea. This was a trawl of the Department “---to find about 6 Programmers and 3 Higher Programmers to augment the planning staff at Southend”.

After a full day of aptitude tests at The Civil Service Commission, Saville Row, I arrived in August 1965 at Southend to be met by Derek Oakes, Officer, ADP. Derek, along with fellow Officer Jack Ottaway, owned a large guest house in upmarket Thorpe Bay called “The Haven” which was staffed by ‘au pair’ girls and had draught Guinness on tap. The Haven was used by young C&E Officers coming to Southend (or passing through after training) and was referred to as a “den of iniquity”; either affectionately or censoriously depending on one’s viewpoint. I regret to have to say that The Board ruled it off limits eventually.

Derek Oakes ferried me to work every morning to 39 Victoria Avenue, which was a large semi-detached house in which the new ADP teams developed Payroll, Warehousing and Mechanised Accounting programs; the Statistics Suite team and the computer and Operations Staff were in a 2-storey building further down the avenue to which Portcullis House was attached eventually! Our computer was a LEO III, named after Joe Lyons of the Corner Shops, who was the first to use a computer commercially in the UK. The computer occupied the ground floor of this building and the ‘database’ filled a room the size of a badminton court. The power and capacity of LEO III was a tiny fraction of that of today’s laptops; programming this monolith was a challenge!

At this point in 1965 the whole of Customs Computing comprised four suites of programs; Statistics, Payroll, Warehousing and Mechanised Accounting, plus the Operations and Data Preparation sections (which contained most of the ADP staff).. In all there were about 70 people but over the next 20 years this expanded to about 2000, during which time in-house promotions were rampant and aptitude test pass marks got lower to achieve the required numbers. However, to balance this strain on resources programming got easier as the ‘machine-code’ language (Intercode) gave way to the more powerful ones (eg COBOL) which were easier to use.

In charge of this egotistical, undisciplined but enthusiastic bunch were managers the likes of Bert Alcock, Don Vandenberg, Ron Williamson, Charles Vince and Claude Pilgrim; ably supported by Ben Butler, Tom Essam, Bill White, Nobby Clarke, Roy Gilson, George Smith, Ian Gillies, Arthur Gregson, and Ken Box. This new technology was an exciting challenge to the young incomers, who gave the older ‘planners’ some headaches; but the motivation and entrepreneurial

spirit of all these new ‘technocrats’ fired the development of Customs & Excise Computing. The only other Civil Service computer user at the time was the Post Office. There is much more to tell about the thrills (and spills) of these early days but I will end for now with brief notes on some of the ‘characters’ of the time.

*Bert Alcock, CEO, Computer Manager.*

I never met him at the time but it became clear from word of mouth, reinforced by my later encounters, that he was a sharp operator with enough verve to ‘kick-start’ ADP in Customs. However, typically, he was once asked to leave a prestigious golf course for playing topless.

*Ken Box, HEO, Statistics Team.*

His exhaustive, in-depth study of cases always produced the right analysis—but sometimes too late. Could be relied upon to identify the origin of famous lines from literature (an ‘oracle’). Mostly staid but occasionally and surprisingly wild; once, having demanded, and got, his entrance money back from the Crazy Horse Saloon I had to restrain him from going back for his cloakroom fee.

*Ben Butler, HEO, Operations.*

A real gentleman and a gentle man. Became Ops. Manager and was, in due course, awarded MBE. His wild side was going on golf holidays with 3 other blokes in a tiny caravan. Best joke “eggs for breakfast, I’ll be bound”

*Laurie Fenne, CO, Stats.Team*

Eternal jester. Remembered for (inter alia) being admonished by Arthur Gregson for sitting for some time on top of a coat rack. Arthur never found out that Laurie had been plonked up there by Ken Box and Fred Baynham and couldn’t get down! Laurie later became Captain of Ballards Gore Golf Club and arrived on his opening day by helicopter.

*John Fisher, EO Programmer, Stats.*

Bane of OPS off-line staff, who organised computer runs. John believed in using the energy of the machine rather than his own so he only ever corrected the ‘immediate’ fault, so his programs crashed again a few lines further on. I think he was much more interested (and talented) in creating songs and music than computer programs !.

*Bob Fowkes, Officer Programmer, Stats.*

Already a bit long in the tooth as an Officer in Dover he took to computers like a duck to water and was with me on our programmer



training course at Ealing in 1965. He was a member of MENSA, a slightly reluctant (but good) golfer and liked fast cars. Rose to become Assistant Secretary in charge of the Computer Development Division.

*Arthur Gregson, Assistant Accountant, Payroll.*

A generous-hearted, clean-living, violin-playing patriarch. Golf and computer-challenged but an enthusiast of both. I was with him at Belfairs when he got a 'hole-in-one' after missing the ball completely with his first swipe. Memorably once allowed one of his staff to grow mushrooms in boxes of horse manure on cabinets in the Payroll room (but he had the first 'flush'!).

*Stan Harwood, HEO, Warehousing.*

Cynically amusing, eccentric. Boolean algebra freak. Spoke with a laid-back and confident drawl. Could not be ignored but gave impression of living on a different planet.

*Johnny Milsom, OE Ops.*

Wheeler-dealer, sometime golfer. Once charged me half-a-crown to borrow a putter. Think of Arthur Daly.

*Betty Mines, HEO, Stats.*

Eccentric, giggly, simpering, incisive, technically brilliant.

*Claude Pilgrim, Accountant, in charge of Payroll.*

Ex RAF Officer. Probably had a handlebar moustache. Good manager but somewhat computer-challenged. Took the team out to the Alexander Yacht Club whenever a program ran to its end during trials (irrespective of the results).

*Reg Salmon, EO Programmer, Stats.*

Great table-tennis player; stood close to the table and took shots very early, hardly ever moving his feet. He sometimes left his desk for hours with pen on paper and part-way through a sentence. I think he made HEO Programmer before he left the Service.

*Bill Sant, EO Programmer, Payroll.*

Arrived on promotion from DCO, Chester. Probably the most astute of the new programmers and by far the best behaved; rarely getting tipsy at the numerous celebrations of computer successes and never lusting after the Data-Prep girls. Nevertheless he blotted his copy-book by declining nomination for a Queen's Birthday Honour in the 1980's; a decision he has since much regretted.

*Ernie Saville, EO, Operations.*

Led a 'chequered' life. Served in the Royal Navy on Corvettes in

WW2 and, not being a natural sailor, was constantly sick with subsequent damage to his stomach. Could charm the birds out of the trees and was put in charge of a mostly female Paper-Handling Section (what else?). Married four times and was very happy with his 4th wife (who was somewhat younger than some of the kids from his earlier marriages) and with whom he had 2 children. Would warrant a book and a film.

*Bob Shemmings, Officer Programmer, Warehousing Suite.*

Left soon after I arrived. Went to work for Freemans (catalogues) on their computer. Became Managing Director of Freemans and was a typical case of talented C&E staff making good 'outside' after C&E computer training/experience.

*George Smith, HEO Stats.*

Spoke words of wisdom out of the side of his mouth. Being a bit deaf I found it easier to read his lips by standing next to him. He made an 'aside' after interviewing me for promotion to SEO that I was a "rough diamond" (I was not sure what that meant at the time and thought I had been insulted). George rose to Assistant Secretary in charge of the Computer Operations Division.

*Mac Vann, CO, Operations.*

Responsible for arranging programmer jobs in a queue for running on the computer. Assiduous in the performance of his duties, and a source of terror to programmers who did not fill in the 'run' forms meticulously.

*Doris Vidler, CO, Data Preparation.*

In charge of the Data Prep. girls who worked on the top floor of Portcullis House and who had to assemble and type Programmers' codings. Doris was sometimes referred to as "Vidler on the Roof", and the programmers had to get past Doris to even talk to her girls! (a matriarch supreme).

*Charles Vince, SEO Statistical Suite.*

A laid-back opportunist. On being appointed Computer Manager over all of the early programming teams he became a prolific, but shrewd, delegator. I once accompanied him to a computer conference at Harrogate, where I attended all of the sessions and reported back to Charlie each evening on his return from excursions to The Dales. He spent a lot of time in his office, but eventually was asked to remove a sofa and camp bed. He always knew where you could get the cheapest tin of paint.

### **Notes on William (Bill) Sant.**

Bill was born 31 December 1934 in Winsford, Cheshire. Left Council School aged 13 ("highly strung"!) and became local farm hand. Joined Post Office in 1950 as "Telegram boy", promoted to "Counter clerk" in 1956, and became "Clerical Officer" in HMC&E at London Airport in 1960. Transferred to Chester in 1962.

Whilst in Collectors Office, Chester, passed the aptitude test for computer work and joined HMC&E "Computer Bureau" at Southend in 1965 as a programmer. Wrote programs on LEO 3 in Intercode to implement the first Customs computer payroll suite. Progressed from there to manage the transfer of programs from LEO 3 to ICL System 4, and the training of new programmers. Ended up as "Principal" in HMC&E and retired in December 1992.



# LEO III software rebooted by David Holdsworth

The project to preserve Leo III software in a runnable state is in a constant state of flux, so by the time that you read this some things will have changed. If I had written it yesterday it would have been quite different. However, we do try to keep some information up to date which you can access via:

<http://sw.ccs.bcs.org/leo/index.html>

As reported in a previous issue, we are resurrecting software that survived only as printer listings kept for many years by Colin Tully. Several programs survived in Colin's box of listings. There is a rumour that a second box existed, but seems sadly to have been lost. Did it contain the CLEO compiler? We shall never know.

So far we have concentrated on 08000 (Intercode Translator), 09001 (Master Routine) and 08004 (Master Routine Generator). All three are written in Intercode, even 08000. The printer listings have been transcribed by copy typing into three text files: 08000.csv, 09001.csv and 08004.csv. You can rerun the bootstrap for yourself by looking at:

<http://leo.settle.dtdns.net/LeoCode/readme2.htm>

As well as writing an emulator for execution of computer code, the first step involved writing a new Intercode Translator just to generate a binary program version of 08000. We have now pensioned off the new Translator and use the real 08000 to translate itself and the other programs. We have now translated 09001 and 08004, and run 08004 to generate a master routine to run on our emulating Leo III. We have written a couple of little test programs, including the famous Hello

World!

In recent times we have been trying to run 08000 under our master routine, but receiving the message REJECT D. We decided to lessen our ambitions and try Hello World! — same REJECT D.

Shortly before writing this, I discovered that these are not the same REJECT D. The first one comes about because our emulated machine does not have a type 4 printer. The second one is more curious. It appears that the master will reject any program that does not specify any I/O files. Our version of Hello World! outputs the famous greeting on the typewriter. It would appear that it would have been rejected by a real Leo III.

Third time lucky; time to try Ray Smith's simple payroll program. For the very first time, our master routine loads (allocates in Leo-speak) the program and enters it. After a few instructions, the program enters the master routine to open the printer file, at which point we get error messages, which this novice Leo operator can only guess at. However, I know that the emulated printer does not work and constantly reports itself inoperable.

Our aim is to make it possible for today's programmers to understand what was involved in getting things to work in the 1960s. As well as providing emulation facilities to run on people's own machines, we have a web site upon which you can run Intercode programs. You prepare your "paper tape" in a window on the screen, and then submit it to be run. Turnaround is usually much better than over-night.

## **Notes on David Holdsworth.**

Dr. David Holdsworth is considered a leading authority on Software Conservation. David's first involvement with computing was with the English Electric KDF9, as a user, modelling quark calculations in Oxford in 1965 and thereby began his lifelong interest in software.

He worked at Leeds University in Computing/IT from 1967 where he was the lead implementer of their Eldon2 multi-access system.

In more recent years he has worked on projects concerned with the retention of digital information.

This has continued after his retirement in 2004, and he is currently trying to protect our software heritage.

He is a committee member of the Computer Conservation Society, with a particular interest in the preservation of software.

David is of the view that we can only really recreate the experience of using yesterday's software if we can run it on current hardware and to this end, amongst many others, he has expended considerable effort in resuscitating some LEO systems software.

He was drawn to work on Leo by the fact that he never knew Leo, and

hence the experience would be akin to the experience of future historians grappling with software remnants from long dead systems, a kind of software archeology. Not that remnants necessarily die all that quickly.

Remnants of David's identity management software are still visible on the Leeds University website.

David is also a long serving member of the British Computer Society (BCS) where he held the office of Vice President from October 1992 to October 1998. He also served as an elected member of the BCS Council until 2001 and was re-elected for the term 2002 to 2005.

His many namesakes make Google a misleading guide to his on-line presence, but you can find stuff scattered about, even at such august institutions as NASA.

David is currently Senior Research Fellow at Leeds University and lives in the Yorkshire Dales. Although supposedly retired he continues his fascination with computation, and wonders how we transform nostalgia for past systems into historical artefacts.

# News and Recent Events.

## 2014 –2015 David Tresman Caminer Postgraduate Scholarship award.

- A break with tradition, saw this years David Tresman Caminer Postgraduate Scholarship in Business Computing awarded to two candidates:
- Tope Ashiru and Matthew Peet
- The awards were presented at the annual Scholarships and Awards ceremony at the Middlesex University Campus in Hendon on 12th November. The scholarship was awarded by the LEO Computers Society in memory of David Caminer, one of the seminal figures of the computer industry; as a founder member of the team that created the

LEO computer and effectively the inventor of OS systems analysis as we know it today.

- David Caminer's widow, Jackie, and his son and daughter were present at the ceremony. Ralph Land and Peter Byford represented LEO Computers Society.
- The scholarship award is supported by both the LEO Computers Society and the AIT Trust.
- 26th June, 2015 marks the centenary of the birth of David Tresman Caminer OBE (26 June 1915 – 19 June 2008)

## The Information Age Gallery at the Science Museum

- On the 24th of October 2014 Her Majesty the Queen opened the new Information Age Gallery at The Science Museum in London.
- Link to website: [The Science Museum](http://www.science-museum.org.uk)
- Pictures kindly provided by Tilly Blyth, Keeper of Technologies and Engineering at the Science Museum.
- An in depth review of this spectacular, must see, exhibition will appear in the forthcoming edition of our newsletter/review.



The opening of The Information Age Gallery.  
Courtesy The Science Museum



Rugby Tuning Coil in The Information Age Gallery.

Courtesy The Science Museum



Listening to LEO at The Information Age Gallery.

Courtesy The Science Museum

## Committee

Peter Byford Chairman  
John Paschoud Treasurer  
Frank Land Chair History sub-committee

Ralph Land  
Gloria Guy  
Ray Hennessy  
John Daines  
Colin Hobson  
Cyril Platman  
Mike Storey  
Bernard Behr Secretary

Tony Morgan Technical Consultant, membership database manager and history sub-committee.

Bob Stevenson Website Manager

In addition we have a number of volunteers who are helping with the history projects. Our recruitment of new members is mainly by way of our website. We now have over 750 members.

[www.leo-computers.org.uk](http://www.leo-computers.org.uk)

[globalleosociety@gmail.com](mailto:globalleosociety@gmail.com)

Editor: Bernard Behr

## Reunion at the historic Middle Temple, April 10th. 2016 - 12am to 5pm.

- The Reunion will additionally celebrate the 60th anniversary of the first external order for LEO II/2 received by the then, newly formed LEO Computers Ltd. W.D. & H.O. Wills (now part of BAT) placed the order which was subsequently installed in their Bristol H.Q. in Sept. 1958.
- **Invitations will be sent out shortly** and the cost will be £30.00 per person with an early bird price of £25.00 for all members who accept and remit payment before 31st. Oct. 2015.
- In view of the success of our 2014 reunion at the same historic venue we are all expecting an excellent response, so please book early. The food is expected to be far better than 2014 and we are also working toward sponsorship.
- It will be a wonderful opportunity to renew old acquaintances and make new friends and we look forward to seeing you all.

## Newsletter and Review Vol. 3 - Publication scheduled for Spring 2016.

- The overall theme of our next publication will deal with Computer Education and imparting the history and development to a new generation.
- The articles will be aimed at both primary, secondary and tertiary education and will cover Hardware, and both Systems and Application software.
- If any of our members feel they would like to contribute to this publication, please contact the editor Bernard Behr at [bernardbehr@live.co.uk](mailto:bernardbehr@live.co.uk)