

A MISCELLANY OF MEMORIES

RECOLLECTIONS

of the

STAFF AND ACTIVITIES

of

**STANDARD TELECOMMUNICATION
LABORATORIES LIMITED**

(STL)

**1st December 1945 to
25th November 1986**

**STL ATHLETIC and SOCIAL CLUB
JUNE 1991**

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INTRODUCTION

There are few more pleasant ways of passing an hour than looking through old photographs and listening to often-told tales of times past remembering who was who and what was what.

“Miscellany of Memories” hopes to take you on a guided tour down memory lane, something of a mystery tour at times as old friends and colleagues and forgotten incidents appear at every turn, hopefully bringing back many happy memories.

Of course, everyone will feel that special interludes of particular interest have been lost and in any case space has been limited, restricting the number of recollections that could be printed.

Nevertheless, we hope that the book will bring back to mind not only those people and events recorded, but also those personal memories which go to compiling one's own miscellany.

BON VOYAGE!

ACKNOWLEDGEMENTS

Our grateful thanks are due to all those who took the time and effort to send in their stories and to those people who helped in the researches and assembly of the rest of the book.

Names are too numerous to mention, however a special vote of thanks is due to Len Stoker who has captured each story visually in a way which we are sure will be appreciated by those involved.

To you all, we hope you enjoy reading the book and that each reminiscence will conjure up further recollections which together summarise all the people who are STL.

F. R. Scott
A. A. New
E. G. Shrewsbury
J. K. Hobb
J. A. Lenc
G. Drayer

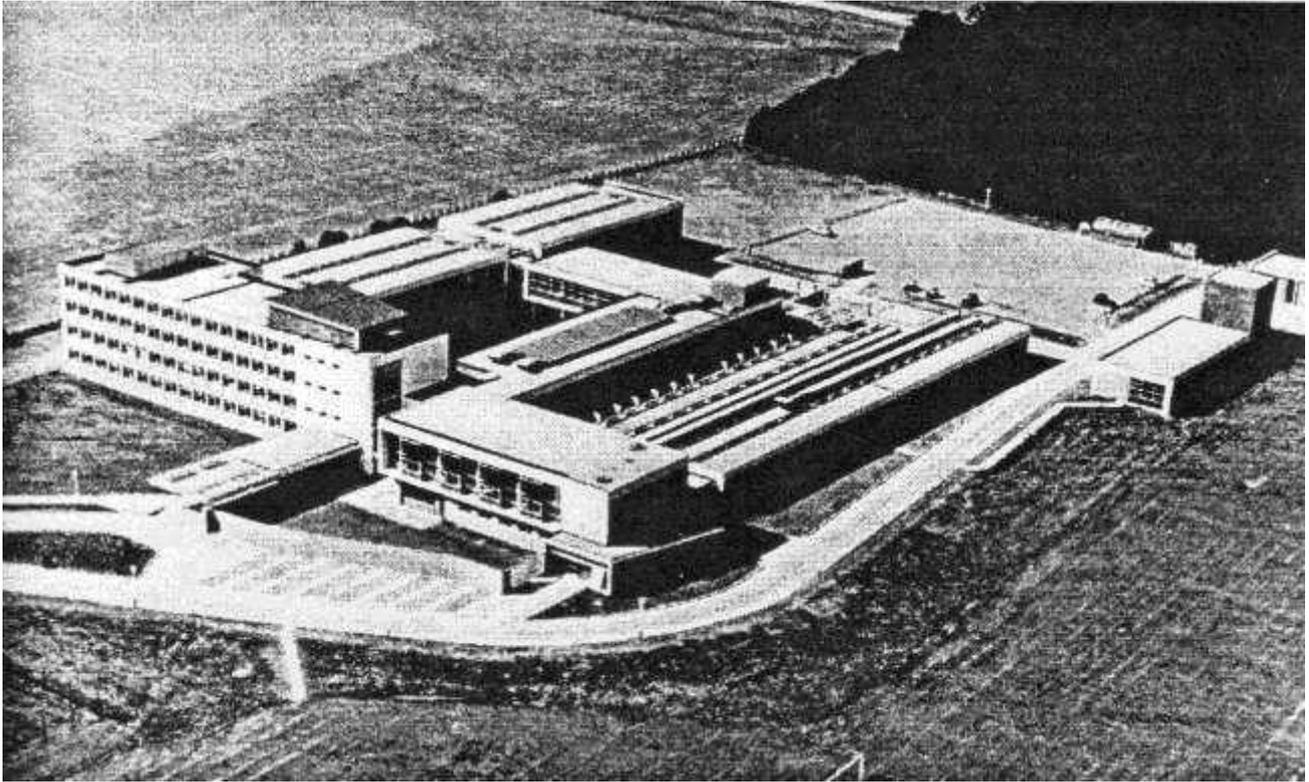
D. E. Brown
G. Dawson
L. Lewin
J. B. Setchfield
W. D. Howell
R. Carothers
E. Evans
Sterling



Progress Way



Frogmore Hall



New STL

THE FIRST HEADCOUNT OF
STANDARD TELECOMMUNICATION LABORATORIES
11th. MAY 1946

T.R.Scott	D.E.Brown
A.A.New	G.Dawson
E.G.Shrewsbury	L.Lewin
J.K.Webb	J.B.Setchfield
J.A.Leno	W.D.Howell
G.Drever	R.Carruthers
G.V.Planer	E.Evans
Dr.S.G.Foord	A.E.Sterling
D.R.Beckwith	D.M.Arnold
I.H.Whalley	S.T.R.Cosgrave
G.Cleary	A.E.Pethick
G.A.Vasey	A.E.Brewster
J.Lewis	G.F.Hiles
K.W.Jones	C.L.Thompson
R.E.Thirsk	C.J.Sharpe
H.Busfield	K.McBride
Dr.S.E.Mayer	L.R.Greaves
S.Brown	E.G.Cowlard
M.V.Goodwin	Mrs.H.Kinge
H.Kinge	M.VanHasselt
P.Degan	A.L.Long
H.B.Wood	H.M.O'Neil
A.Pollard	R.W.Fraser
A.F.Amos	T.R.Gubbins
A.A.Bell	H.W.Silcock
E.C.Mills	C.J.Steward
W.H.Anderson	W.Beverley
T.McCarthy	Mrs.S.L.Gould
W.J.Partridge	E.P.G.Wright
A.Russen	D.A.Weir
R.Tripp	L.R.Brown
W.Nelson	K.S.Gordon
W.J.Stopher	Mrs.K.Field
H.F.Dennis	Mrs.E.M.Loverseed
W.Allen	N.B.Noble
A.Johnson	L.A.Kirby
L.Parrish	H.W.Sidey
J.C.Gardiner	Miss M.Henderson
K.Rabey	Miss K.Foley
Miss L.R.Wells	Miss M.Taylor
Miss B.Hodgson	L.S.King
Miss O.M.Davis	F.R.Rouse
A.H.Reeves	Miss P.Emmett
D.Ransom	Miss P.Buckwell
R.H.Taplin	D.Raynor
E.H.Rawlinson	C.T.Andrews
A.A.Sandler	E.A.H.Jahn
F.C.Geary	Miss S.W.O'Connor
A.E.Povey	P.J.Rogers
Dr.A.T.Starr	V.O.C.Bryant
H.Grayson	R.D.Morgan
N.F.Moody	W.G.Dutton
G.King	

Subject:- ORGANISATION

<u>Ref.No.</u>			<u>Report to:-</u>
14	Director of Research & Development	T.R.Scott	-
1401	Asst. to Director of Research	A.T.Starr	14
1402	Asst. to Director of Research	N.B.Noble	14
Laboratories:			
1403	R100-(Materials & Special Components)	G.King	14
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1404	R101-(Pulse Techniquo)	A.H.Reeves	14
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1454		J.K.Wobb	1405
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1471		D.S.Ridler	1407
1472		D.A.Weir	1407
1473		C.Parker	1407
1408	Laboratory Administration Officer	F.J.Bull	14
1481	Accounting & Office Services	L.A.Kirby	1408
1482	Personnel & Welfare	P.J.Rogers	1408
1484	Canteen	S.A.B.Ward	1408
1485	Service & Maintenance	V.O.E.Bryant	1408
1486	Purchasing, Stores & Receiving	V.O.E.Bryant	1408
1409	Technical Service	A.Ramsay	14
1491	Special Services	A.Ramsay	1409
1492	Technical Information	A.Ramsay	1409
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1494	Technical & Product Reports	H.A.Waters	1492
1495	Laboratory Service	E.G.Shrossbury	1409
1496	Drawing Office	J.Isaacs	1495
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T. R. SCOTT
Director of Research

DISTRIBUTION:-

Company Order List.

COMPANY ORDER No.1

BRIEF HISTORY OF STL

Shortly after the end of the second world war STC had decided to re-establish research facilities. Until the middle of 1931 a laboratory which could be considered the forerunner of STL had been established within ITT operating in premises formerly occupied by the Royal Air Force on Hendon Aerodrome. This laboratory suffered the fate of many similar institutions following the depression.

The new facilities were to be established in an existing plastics and cable factory in Progress Way, Enfield as a temporary measure. The company was to be known as Standard Telecommunication Laboratories and the date of formation was 1st December 1945.

At that time the new company's Managing Director was Mr. A.W. Montgomery, the Assistant Managing Director was Mr.T.R. Scott, the Administrative Manager was Mr.N.B. Noble, and the Personnel Manager was Mr.P.J. Rogers.

The early days of STL were most interesting, rewarding, frustrating and at times quite difficult. The lack of supplies in the way of furniture, stationery, or any other fixtures and fittings necessary to set up the new laboratories was a problem. The activity at Enfield had been a plastics and cable factory where there was one rather large wide open space and very little else. It was a question of the Plant Engineer and P.J. Rogers himself attending auctions and sales and obtaining items from other STC Companies. To buy or borrow a typewriter was almost impossible in those days, it was a matter of bullying someone to lend you one. STC unfortunately were not able to help to any great extent as they required the items for themselves in opening up the new factory in Newport. However individuals were most helpful and kind. For instance it was almost impossible to get things like application forms printed. Mr. Thompson, the Personnel Manager at New Southgate fortunately had a very good supply and made a few hundred available.

It was no mean job to find the staff to work at the new laboratories. There were very few people of the level or qualifications required available and consequently people like Dr.A.T. Starr, who joined STL from Malvern and who was in contact with colleagues from the past, would try to interest them in STL.

As we had had over six years of war, materials and components were in very short supply. We had to find alternative suppliers which in fact turned out to be Government surplus stores. Some of the items were of special importance because of the value of the components they contained for the work which we were engaged on. Two notable ones were the gunsight predictor, which contained motors and gears, and the Pye IF strip which



A.W. Montgomery, J.D. Clare, T.R. Scott, S.B. Marsh



*G Hartley, R. Fraser, L. Kirby, J.K. Webb
J. Kemp, A. Long, E.P.G. Wright*

contained many components and valves, EF 50's, in those days very much sought after.

At the end of 1946 the number of staff totalled 217. This was to grow to 408 at the end of 1950.

Some prominent names in the group at that time in addition to Mr. Montgomery and Dr. Starr were Harry Grayson, Norman Moody, Geoff Dawson, Harold Walker, Alec Reeves, E.P.G. Wright and Roland Dunkley.

Some of the earlier projects in which they were involved were the double beam oscilloscope which allowed something like three megacycles bandwidth and the automatic impedance bridge, shown at the first Physical Society Exhibition, which allowed one to clip a component across the terminals and it would sort out its type and read the value of inductance, capacitance or resistance to an accuracy of 1 percent.

Then there came the larger projects like the microwave link employing between twenty and thirty people, wavemeters and linear accelerators requiring the building of lead walls weighing several tons.

The wideband microwave links were a particular speciality. They were of great interest as television was obviously here to stay and multichannel telephony systems were being developed.

A SHF Microwave System was designed by Dr. Starr's group using a travelling wave tube amplifier invented by Rudolf Kompfmer when he was working for the Admiralty and developed by STC Paignton (D.C. Rogers). The system was taken over and engineered for production by STC Transmission Division for the GPO order for carrying television signals between Manchester and Edinburgh. This was the first application of SHF outside North America and the use of the travelling wave amplifier was the first application in public service in the world. The Manchester to Edinburgh link was actively put into service in early 1952, a month before it was due for acceptance by the GPO in order that the funeral of the late King George VI could be shown in Scotland. The time elapsed between the invention and the actual in service use of the travelling wave amplifier of about 7 years was exceptionally short.

The Electronic Switching Division, headed by Alec Reeves, was originally involved with ITT Laboratories at Nutley in the development of electronic switching and the original switch was the cyclotron, a cathode ray device, around which a twenty-four channel PABX was developed and demonstrated in New York in 1946. Alec Reeves however had ideas of developing a hard gas tube for switching purposes and A.H. Beck and G.H. Hough took over this feature. Reeves was, of course, only concerned with digital transmission and switching and all his work was therefore in this form of transmission. Reeves submitted a number of futuristic patents on electronic switching but, like pcm, they



J. Armstrong, T.M. Jackson, A.H. Reeves, D.A. Weir, D.Tarran, O.G. Williams



D.A. Weir, T.R. Scott, D. Thomas, J. Rice, E.P.G. Wright

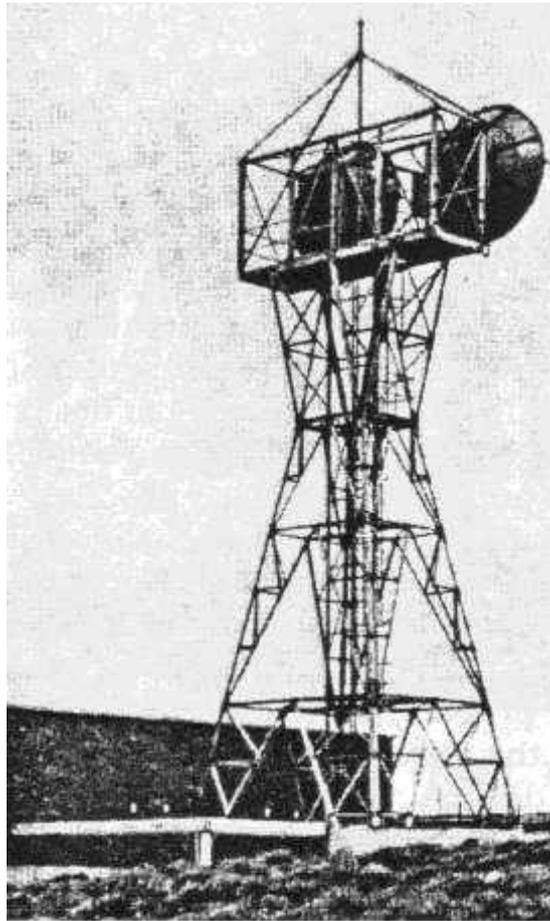
were ahead of their time and lacked the techniques for their development. STL work on electronic switching was therefore discontinued in 1949.

From 1946 to the middle 50s the initial work of 1470 Division covered telephone switching and telegraph applications. Systems design was by D.A. Weir, J. Ronayne and J. Rice with Manager E.P.G. Wright always available to assist, particularly in his inventive capacity. Laboratory work, circuit design and prototype development was controlled by D.S. Ridler with able backup chiefly from A.D. Odell. Early work included the development of telegraph regenerators, a code bar switch and associated switching system and testing signal imitation (on behalf of CCITT who were trying to design and introduce a new international signalling system).

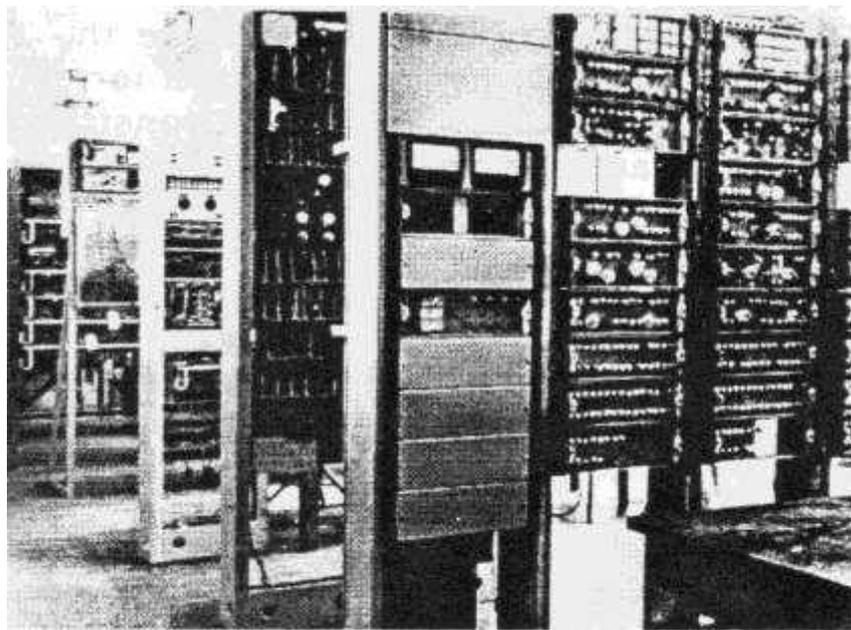
Around 1950 ITT/STC decided to suspend telephone switching applications at STL. Fortunately about this time STC became involved with J. Lyons in the development of LEO (Lyons Electronic Office), a computer system for payrolls, bread delivery forecasts and similar work to release office staff for other operations. STC approached STL to design the preparation of data in a form suitable for computer operation, the input (decimal to binary conversion), the output (binary to decimal conversion) and the ultimate paper results. System design was by D.A. Weir and J. Rice backed up by E.P.G. Wright. Design of circuits, a high speed magnetic tape machine and the necessary equipment practice was dealt with by D.S. Ridler and his team. The equipment was installed for trials in Cadby Hall but, although the design proved entirely suitable, it was finally removed because the high speed gas filled counting device that was extensively used in the circuitry lacked the extremely high reliability required. The gas tube was the STL deatron.

Because of this computer experience the Transmission Division asked us to produce a system to reduce the work involved in filter design. A team consisting of J. Rice, P.W.S. Harrild and D.G. Hunter designed a computer called STEP 1 based on magnetic drum storage and the laboratory again developed the circuits and equipment. This was one of the first electronic stored programme computers to go into active service. Subsequently STC were approached by the Dutch PTT Research Laboratories (NSEM) for assistance in developing a new computer and asked STL to provide the expertise. In consequence J. Rice worked in conjunction with the PTT, who had the basic idea, to design the practical concept, later to be produced at Newport by STC, known as ZEBRA. STL also developed the required circuitry together with the magnetic drum storage system. For some years ZEBRA was the UK's largest export — over twenty systems.

During this period as a result of development work on the magnetic drum and inspired by E.P.G.'s inventive imagination, an automatic message switching system known as STRAD, using magnetic drum storage was developed. A prototype of the basic system was produced and proved its feasibility, but a decision was taken to cease work on it.



Kirk O'Shotts Tower



Leo

However the BPO took an interest and decided to use STRAD for message switching at the new Gatwick Airport. STL therefore continued producing circuits for this requirement but design and development were moved to New Southgate, J. Rice and G.G. Smith to provide the basis of the team.

Also during this period some research continued on storage devices, transistor circuit design and their applications to systems but about this time the majority of the remaining staff were transferred to other parts of STC.

On the technical front one of the main projects during this period was the development of semiconductors. Fundamental research brought about the 'silane' process for the manufacture of silicon of the highest purity.

Valve operated equipments were the norm, there were large valves being replaced by smaller and smaller valves and then the point contact transistor happened. It was said that it took twenty years to put a second whisker onto a crystal and twenty seconds to put a third but that didn't work! However point contact transistors were tested extensively. They were very limited in their performance but then junction transistors arrived.

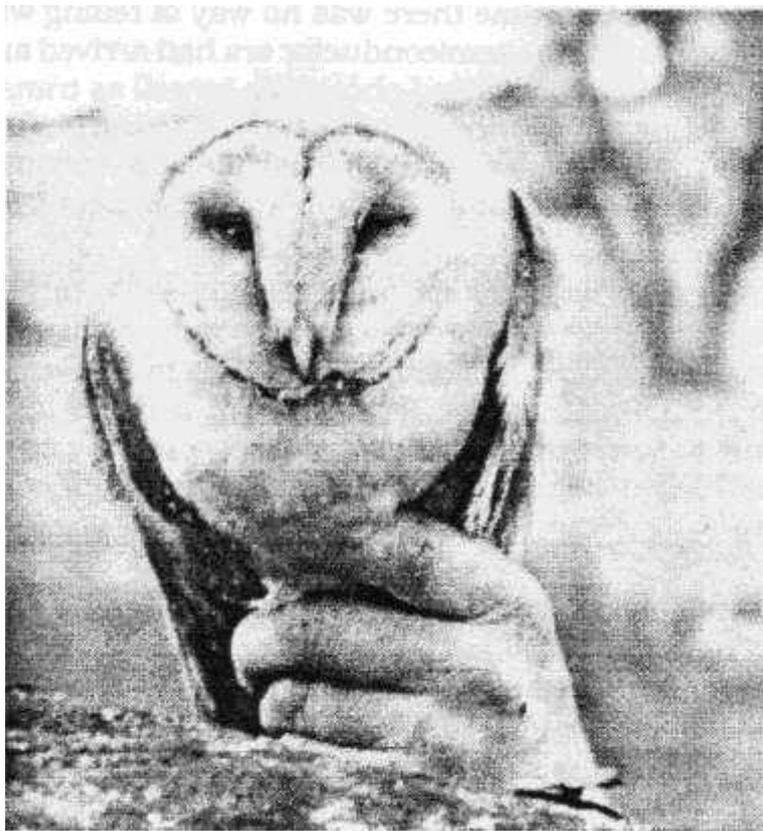
There was much speculation as to what success they would achieve. At that time there was no way of telling where it would all lead. In fact the semiconductor era had arrived and soon there were junction diodes and photocells as well as transistors. Small high-value tantalum capacitors had also been made and the new range of components made possible the construction of an advanced intruder alarm system with phenomenal (for that time) range.

As the work grew in volume and importance the accommodation at Progress Way could no longer cope and outstations were established to accommodate small specialised groups. One of these was Frogmore Hall in Hertfordshire where a substantial stretch of level ground proved invaluable for laying out long lengths of a novel helical waveguide to test its transmission properties. This led, in 1959, to a demonstration of the possibilities of this system carrying television programmes or equivalent information in various forms.

The techniques which made this possible included pulse code modulation invented by Alec Reeves in 1938. This technique requires all the different types of signal to be converted into coded trains of pulses, transmitted and then decoded at the receiving end. As it proved, the invention was twenty years ahead of its time and had to await the arrival of semiconductors and integrated circuitry in order to be fully exploited. The turning point probably occurred in 1960/61 when, with extensive cooperation from our Spanish house (SESA) and the Spanish Administration (CTNE), an experimental pcm junction telephone link was put on field trial in Madrid. This led STC to develop their first commercial pcm junction system for the British Post Office.



Len Burst and swan



Owl

The Thrifts near Ware was another large house taken on to accommodate Mr. Ralph's team specialising in general transmission systems. From here staff travelled the world carrying out surveying and planning tasks.

It became apparent that a move was essential. During the early 1950s discussions had taken place on the possibility of new sites in the Enfield area but none suitable were available. If a move from Enfield was to take place then a site in Hertfordshire seemed ideal as housing would be available.

Parts of the county also offered the necessary travel facilities, train and bus routes to Enfield and London, and were in close proximity both to several other STC locations and to many technical colleges.

The site had also to offer adequate room for expansion and provide the special facilities required by the laboratory of open space for outdoor radio and optical experiments. Facilities for indoor and outdoor recreation were also high on the list.

Three sites were short listed, one of which has since become a modern Tesco Superstore, with a strong preference for The Hall, Woodgreen Park in Cheshunt. The site had been requisitioned by the Ministry of Supply throughout the war years for experimental work on testing munitions and small arms and was in a very dilapidated condition.

Although the site was, for the most part, shielded by thick woodland it was in the green belt and feelings were at that time running high on such developments. The requisite planning permissions were sought and although these were initially granted at local level Ministry approval could not be obtained.

It was evident that there was a very vociferous local lobby led by a Harley Street physician, his historical novelist wife and a member of the chamber of a leading London QC.

The Company was, in its turn, able to lobby a large number of senior Government Ministers and Service Chiefs because of the importance of the work being carried out at STL to the armed forces and the post war economy in general. Sir Thomas Spencer was a frequent visitor to Whitehall at this time. Eventually at the end of 1955 an appeal was convened but unfortunately the notice given was rather short. The objectors claimed that the Government was attempting to bulldoze the proposals through. The Public Enquiry attracted large coverage from the national press. Accusations of another Criche Down were made and several graphic descriptions of the results of building a research laboratory in the green belt printed. The Appeal ruled against the development and searches for a further suitable new location commenced.



A T Starr



J Evans



D S Ridler



K Batsford

In 1959 STL moved from Enfield to a modern laboratory complex set in seventeen acres on the edge of Harlow New Town. A total staff of around 500 made the move and continue to form the nucleus of the laboratories as they are today. Mr. R.A. Butler, who was then Lord Lieutenant of the County of Essex, carried out the official opening.

In 1962 Mr. T.R. Scott retired and Mr. J.D. Clare took over and set about making the research laboratories the most modern in Europe. STL's original brief to carry out telecommunications research and development in support of STC, ITT Companies, British Government Agencies and the British Post Office was maintained and widened to include research on materials, components, devices and systems and the planning of their worldwide use. The aim was to concentrate on research that could not be expected to mature in less than five years.

As a result of this brief and following on the current development activities for pcm, a paper was written in 1966 by K.C. Kao and G.A. Hockham containing the world's first published proposal for a wideband optical communications system, a subject which was to win Kao and Hockham the Rank Prize for optoelectronics. The paper proposed information transmission by light signals through hair fine fibres of glass as an alternative to electrical signals through metal wires.

Although the paper opened the floodgates for optical fibre communications research it was not until 1977 that STC installed the world's first repeatered optical fibre system designed to operate at 140 Mbit/s over a 9 km route between Hitchin and Stevenage.

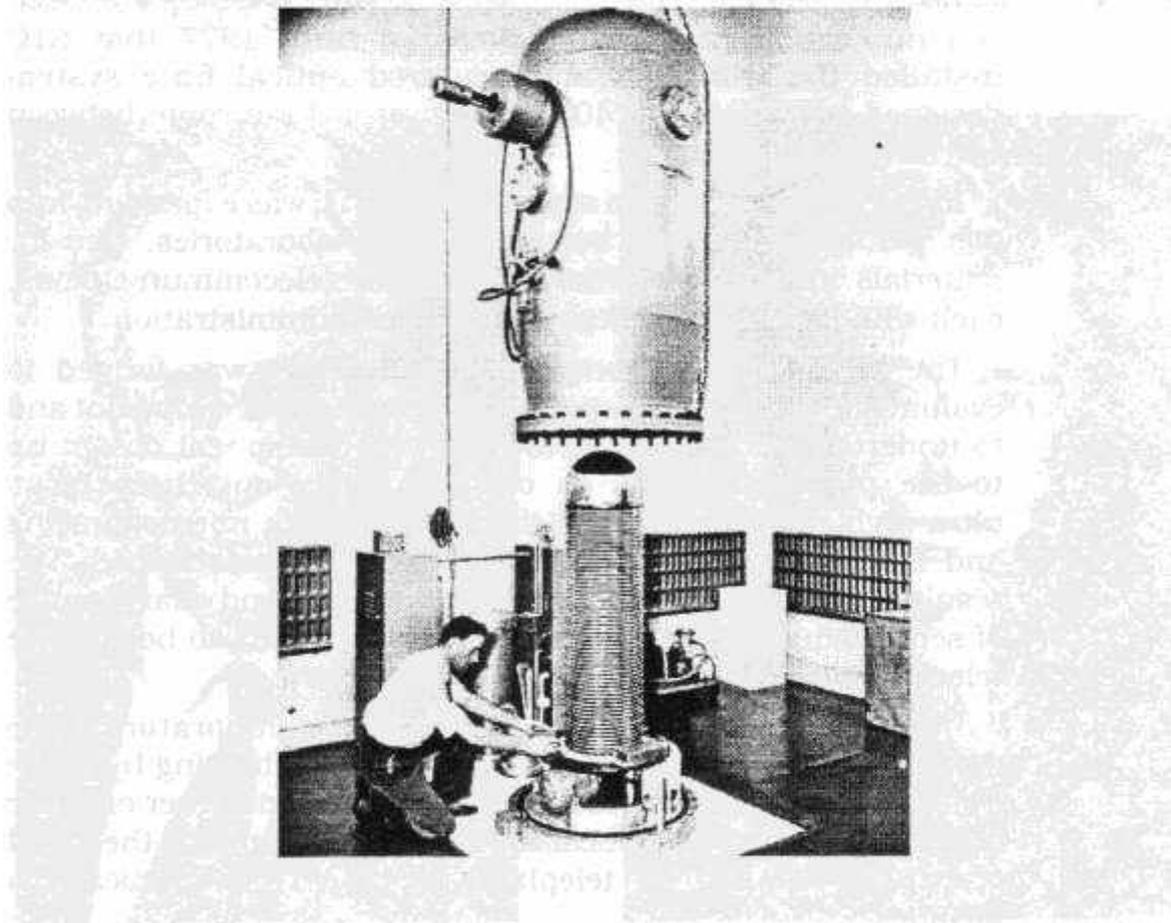
In the 1960s it became apparent that STL was expanding into two groups of distinct but interacting laboratories, one for materials and components and one for telecommunications, each with its own Technical Director and administration.

The materials and components laboratory was formed to evaluate new materials suitable for component development and to undertake fundamental research into component design up to the prototype stage. In order to carry out these tasks ultra-high pressure, ultra-high vacuum spark microengraving and many more sophisticated facilities were established. The results were gallium arsenide infra-red lasers and a large range of semiconductor devices and integrated circuits to benefit the telecommunications systems and other activities.

In their turn the telecommunications laboratory were developing new systems, each generation multiplying by many times the number of circuits that could be carried over one pair of conductors or one optical fibre to keep pace with the rapid growth in demand for telephone and data communications facilities. By 1967 all the tools of modem science were being harnessed to manufacture integrated circuits in their hundreds on slices of silicon which in turn were being interconnected on the slice to form integrated circuits resulting in the first large scale integration (LSI) systems.



HM the Queen and M M Ramsey



Alan Gilbert and Van de Graaf generator

Computers were used to produce wiring diagrams and to assist in the fabrication and testing of the devices so designed. With these new methods the designer had to consider everything from materials technology to maintenance in service.

STL was particularly well set up to work in this mode. Within one building were the research groups covering most of the relevant skills and, by close contact with STC, there was ready access to production activities.

The year 1967 was also a milestone for expansion. To accommodate the rapid advances in technology a new laboratory was opened by Edward Short. There were a further series of open days organised around this event. A marquee was set up and a thousand people were invited to visit. There was a press day with enormous coverage in the media, and the Saturday was given over to staff and their families. There were also specific days allotted to VIPs, learned societies and universities.

This all resulted in increasing the awareness of STL. Graduates were welcomed to come and see the facilities available and the programmes being conducted to enable them to decide whether they would like to work there or at least maintain contact for cross fertilisation of ideas.

Awareness even spread to local schoolchildren. At one time Fred Hiles remembers three ten year olds from the local primary school wrote in to say please could they come and see our computer. They were given a very nice day with lemonade and cakes and a very senior computer man, Martin Lawn, gave them the full conducted tour of the computers.

During the 1970s Managing Director Mr. J.D. Clare retired in favour of Mr. S.B. Marsh, who was in turn followed by co-directors Mr. D.S. Ridler, Dr. J. Evans and Mr. E.A. de L. Young. The laboratories continued to expand in both the main areas. Desmond Ridler directing telecommunications and electronics and Joe Evans materials and components.

One aspect of the continued expansion was the formation of a third division, Programming and Computing Services to service the needs, not only of the other two divisions, but also those of some other STC locations.

STL had become one of the largest communications research centres in Europe. It held the unique position of being the only British research centre to study all aspects of communications technology. This comprehensive capability was widely recognised and resulted in STL becoming the research centre for ITT Europe. By the end of the decade some 25,000 international scientists, engineers and notables were attending meetings each year in the well-equipped conference rooms.



J. Shields



B.D. Mills



A.S. Brown



C. Kao

STL entered the 1980's as a laboratory complex with just over 1,000 staff, many of them PhD's, engaged in a variety of disciplines which formed an organisation designed to promote the technical feasibility of new or improved products.

Although STL had always advanced with the times and was up to the minute in its outlook, by the time that Dr. Jack Shields took over as Managing Director in 1981, rapidly changing commercial requirements needed attention. After analysing the activities of the laboratory, he made it his immediate task to restructure STL.

The present commercial requirements demand that, despite the fact that their technology content is increasing rapidly, products must reach the marketplace very much faster than hitherto. They must have low unit cost and they must be capable of integration both with existing and future equipments.

These factors made three major changes necessary. The first was the appointment of Mr. Desmond Ridler as Executive Director of Technical Programmes and Dr. Ken Batsford as Director of Technology Transfer. The second was the formation of an Executive Committee to direct the policy of STL. The third was merging of the three separate laboratories into one with the technical activities divided among six major divisions each reporting directly to the Managing Director.

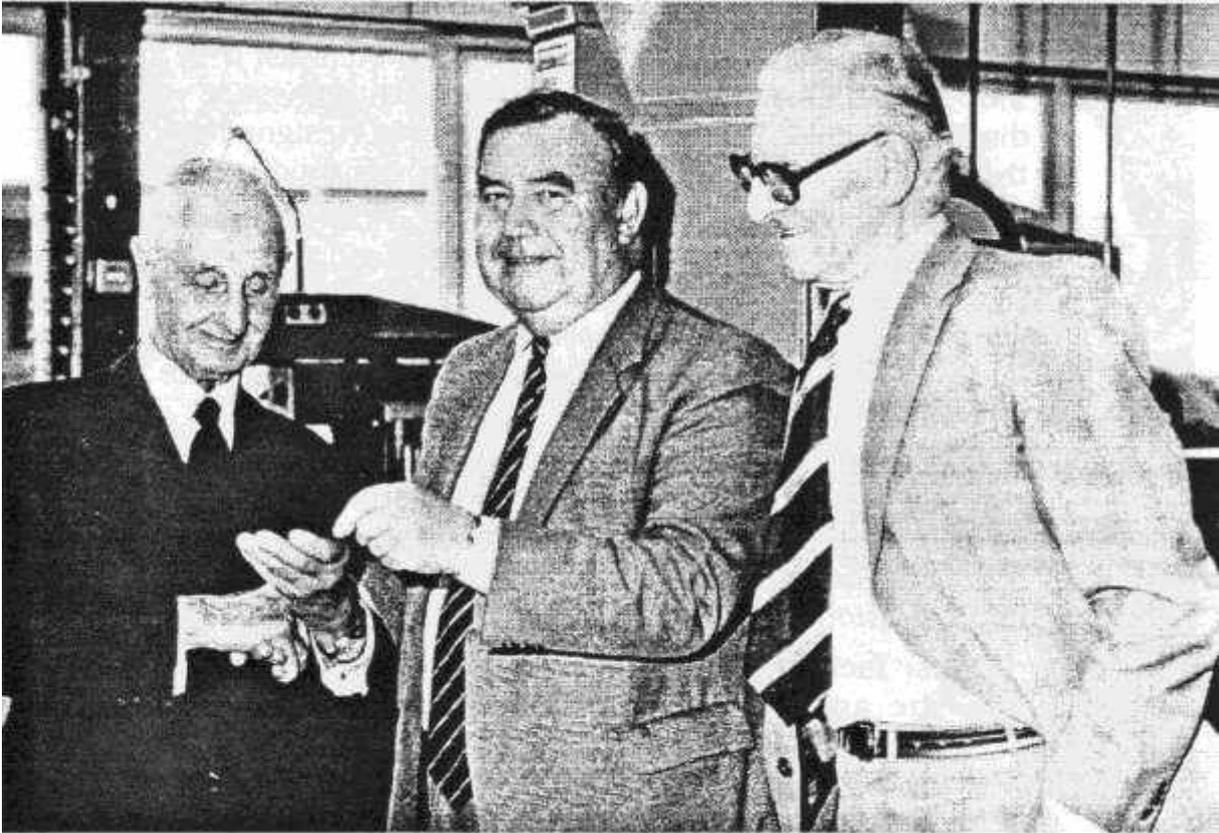
These new divisions were:-

- Advanced Integrated Devices
- Programming and Computer Services
- Materials and Process Technology
- Components
- VLSI Subsystems
- Telecommunications Systems

Early in 1983 STC continued on its major organisational change and in particular the direct interest of ITT in STC altered significantly. Dr. Shields left STL to become Executive Director (Technical) of STC with the responsibility of Technology Planning and Administration, Product Styling and Design and Special Projects.

Mr. B.D. Mills took over the role of Managing Director of STL in July 1983 and led them into their 40th year and beyond. With a background of long service in senior positions with STC, and sensitive to the need for closer, more direct cooperation between STL and the STC development and manufacturing companies, Bernie Mills set about the task of organising the laboratories accordingly, a task which was to take up a major part of 1984.

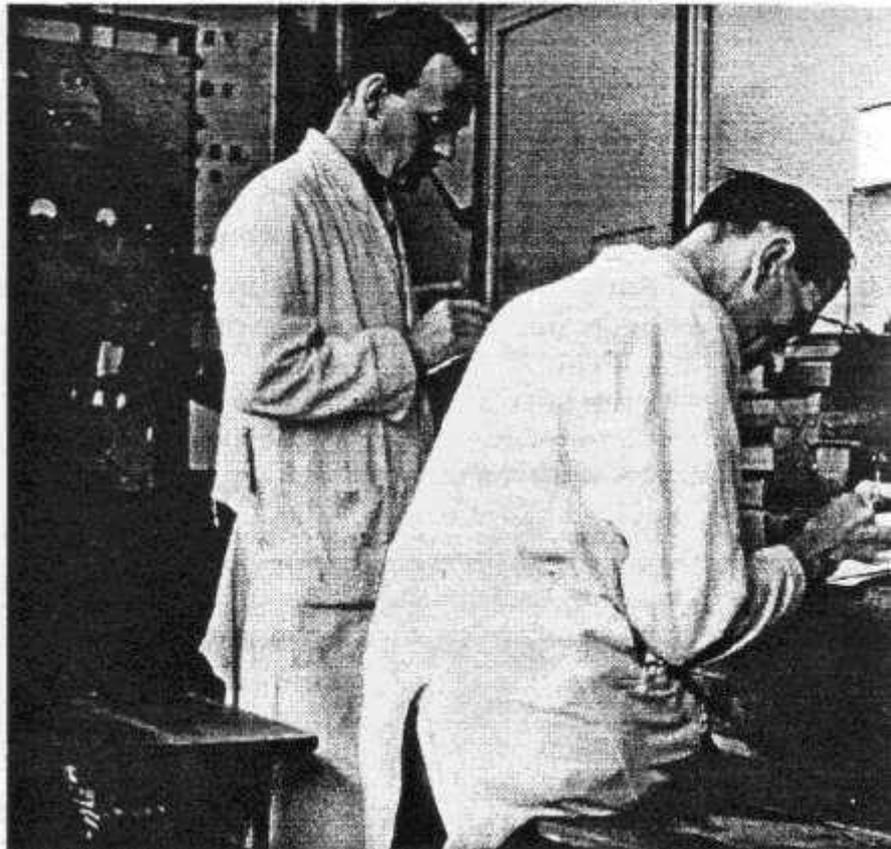
A merger of STC and ICL, which took place In September 1984, was seen to present new and great opportunities for both parties.



E. Shrewsbury, A.S. Brown, P.J. Rogers



*J.B. Setchfield,
V. Knight*



Although marred initially by a general depression in the electronics industry, to which STC was particularly vulnerable, and marked by a sharp drop in sales of components and high interest rates, this new partnership was seen by many to be a natural realisation of the “convergence” of data processing and telecommunications technologies. While the prospects for the merger looked bright at the strategic level STC was about to enter a period of declining confidence which resulted in a further major restructuring under its new Chairman, Lord Keith of Castleacre.

Major changes took place, from Boardroom downwards, leaving a much trimmer organisation better suited to meet the foreseen challenges. STL took its share of the trimming down process with a programme of redundancies and early retirement involving in all about one hundred people.

In October 1985, Bernie Mills retired and was succeeded by Mr. P.J. Cropper. Previously Managing Director of IDEC, a major systems engineering company, originally of ITT but latterly of STC, and with a background of senior positions in ICL of over ten years, Peter Cropper brought with him a timely and valuable knowledge of ICL business philosophy and methods and an appreciation of the potential of the STC/ICL merger.

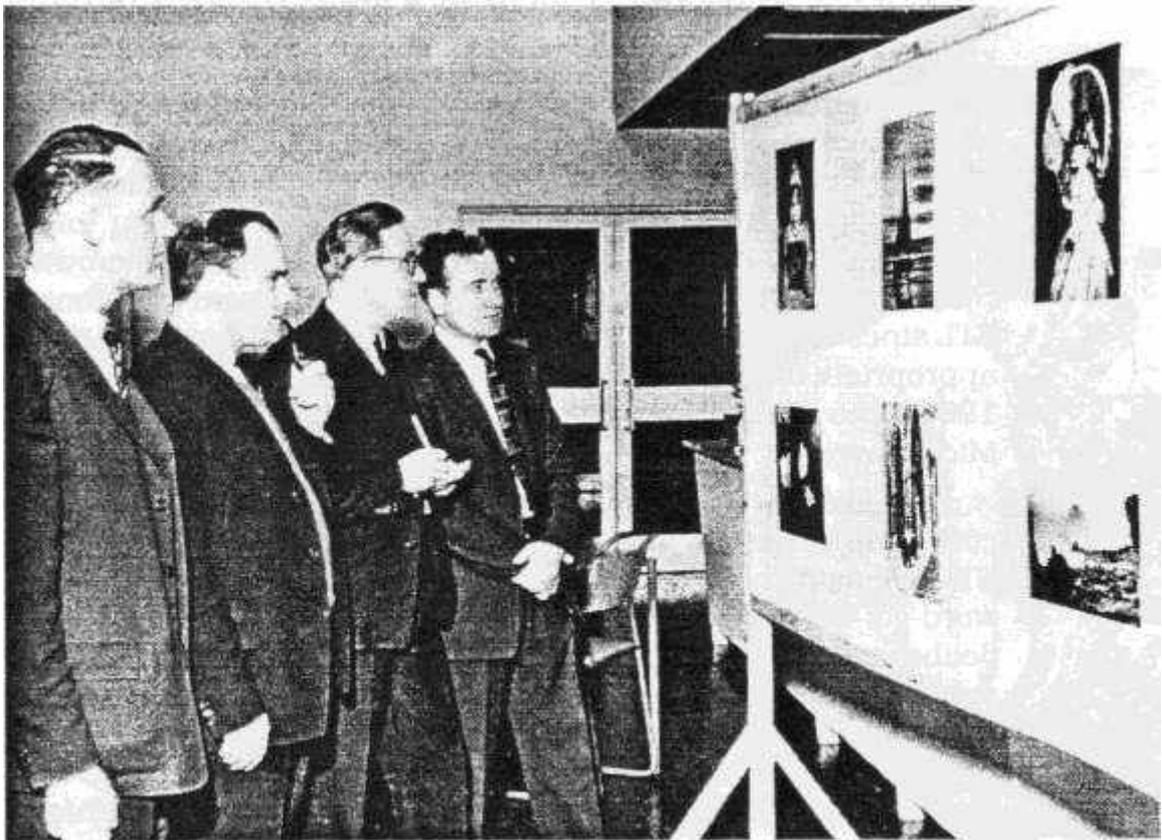
As part of a new restructuring programme the company name “Standard Telephones and Cables Limited” became “STC PLC”. “Standard Telecommunication Laboratories Limited”, reorganised to include an ex-ICL systems engineering and software contingent became STC Technology Limited, the effective date being 25th November 1986.

A casualty of 1986, after some 50 years as a coherent entity, was the Systems Planning Group, whose members were dispersed among the technical divisions. The Divisional Manager of the Group in its final years, Geoff Dawson, had first joined STL in 1946, had been Chief Engineer of STC’s Microwave Systems Division, and had held senior management positions at STL since 1967. In view of his association with the subject it was appropriate that he should have been invited to deliver, in March 1981, the Memorial Lecture “50 Years of Cross Channel Microwaves” at the IEE, Savoy Place, London.

Just before his retirement, Mr. P.J. Rogers was asked to comment on the marvellous spirit that there has always been in STL. He said that “I feel that it has always been there from the word go. We were a family and that didn’t just happen. It was a deliberate attempt by Mr. Montgomery, Mr. Scott and all the subsequent Managing Directors and Senior Managers to develop the spirit. Probably the best indication of this can be taken from the Athletic and Social Club. The support given to the A&SC was, in my long experience of social clubs, far beyond that which I have ever experienced. There was never any lack of support for the various functions. Probably the most indicative is that, where one is forming any sort of association, it is usually necessary to press-gang someone into being secretary or treasurer.



Athletic and Social Club Committee 1957



A & SC Photographic Exhibition

We were almost embarrassed by having sometimes as many as five or six volunteers for the various positions. I think this in itself is an indication of the spirit and willingness of people to contribute to the various aspects.”

The Athletic and Social Club was formed on paper on 1st September 1946, but a number of evening functions and socials had been run from the start of the year. There was even a Christmas function in December 1945 for about two dozen people. The early events were Beetle Drives, Whist Drives, Table Tennis Tournaments and a number of other functions. The actual club was formed, the first Management Committee appointed and the rules and regulations devised on 1st September 1946.

Since that time the A&SC has grown from strength to strength, the number of activities and social events changing to meet the current need.

One of the most successful events organised over the past years has been the Retired Colleagues Dinner first held in 1972 during the Chairmanship of Arthur Brown. The A&SC does not lose contact with past employees but maintains a close contact with them into retirement. Perhaps this is also an indication of

“THE SPIRIT OF STL”

and now for some anecdotes...

CHEMICAL TALES OF OLD

In the 50s the chemistry lab at STL Enfield was in the centre of the building, with no outside windows and entirely dependent on fume chamber extraction as a means of ventilation. It was like a hell's kitchen in the summer.

By the time I joined Jack Wilson's department in 1953, the other 23 members were all engaged on semiconductor research mostly in outside, custom made, wooden buildings with panels which could blow out easily in the event of an accident. I was confined to the inner barracks, but compensated by receiving a long succession of "fun" jobs.

Me and the Greyhound Bitch

As a specific chemical reagent for zinc, to be used in our radio chemical analysis of germanium and silicon, I needed borneol-glycuronic acid. This could not be bought; and its synthesis in the lab was just too difficult. But there was an in-vivo route, involving mammals in eating borneol and converting it into the required acid, which appeared in the urine.

So, off to Professor Amoroso of the Royal Veterinary College, London. After some coaxing he agreed he would put a greyhound bitch in a litter cage, feed her 1 ounce per day of borneol and tell me when the amber nectar was available.

The call came; I drove to the college and collected three conical flasks of yellow ice, stoppered with cotton wool (the college staff had frozen it). I drove back to Enfield like a maniac through the hot summer sun, trying to reach base before it melted and slopped out. Next day, all thawed, and 2.4 litres of nectar began to be evaporated down to small bulk in an open beaker as the first stage in the process. At this point the fume chambers packed up.

Determined not to waste the effort already expended, I toiled on. Water ran down the walls, noxious fumes filled the air, others in the lab left and the neighbours complained. Undeterred, I stayed on after hours and continued. Net result: no useable product.

Cadmium Selenide - the rectifier that never was

After my case had been reviewed by the boss I collected my traps from that lab and reinstalled them in an old surface air raid shelter at the back of the site (never to return indoors!). I then started to make epitaxial cadmium selenide films to replace selenium rectifiers, which were never in any risk of technical defeat from my efforts. This work involved synthesising a succession of hairy chemicals which could not be purchased at that time.

E. Cornish

THE GENTLE GIANT

STL staff from Progress Way days or from the first decade in Harlow will remember the rich Scots brogue, the cheery smiling face and the massive proportions of Jock McKay in Security. (It's rumoured that Jock was once police caber tossing champion). He was certainly assiduous in promoting the produce of his native land and introduced many a Sassenach to the Haggis. I well remember too his strong recommendation of the virtues of a drop of the hard stuff, although I admit that I rarely saw him indulge himself.



Ever so gently ... by the scruff of the neck....

ever so gently ... by the scruff of the neck with “are ye coming for this tea”. Becoming aware that Fred’s feet were no longer touching the floor we decided the time had come to comply.

Though not an engineer himself, Jock was always most interested in our projects and he would have been delighted that Malcolm, his son, has been making some very useful technical contributions for STL.

The commodity which he did dispense most liberally was tea, as those who haunted STL after hours whether for A&SC activities or flogging the cause of science will readily testify. Many’s the time I’ve been hauled out of the darkroom for such refreshment or, ultimately packed off home to my wife because Jock thought it was about time.

When Jock offered tea it didn’t do to refuse, as Fred Hiles can confirm. We were working late one night at Enfield, testing an experimental infrared intruder alarm. Jock had already been around twice to announce “tea up”. On his third arrival he took Fred ...

T.H. Walker

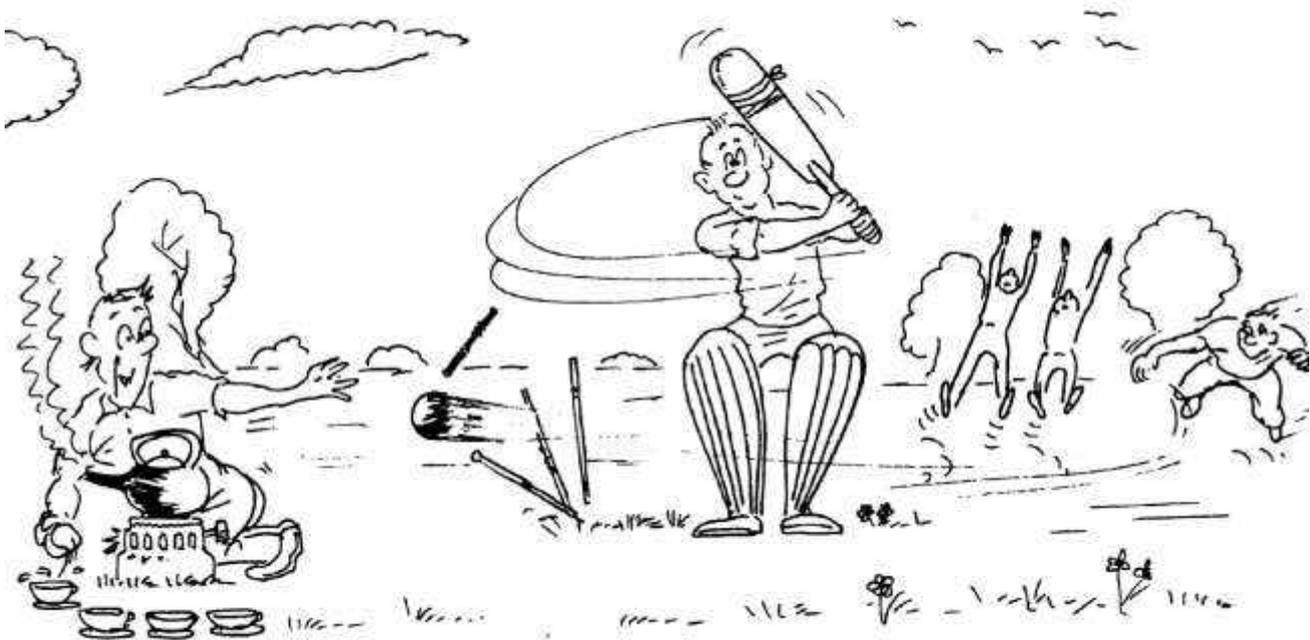
THE CRICKET SECTION

If the Football Section was a disaster, then this was not so in the case of cricket. We had many talented players and had a very successful team from 1947 until we moved away from Enfield. We played at Whitewebbs Park in most beautiful surroundings but with no facilities laid on. Once again Charlie Drew came to our rescue bringing our equipment, our teas and anything else needed in the old shooting brake. We had to rely on a primus for boiling the water and this meant that I, as Secretary, had to leave the field at the appropriate time to boil the water as our ladies were scared of the contraption.

I can never remember there being a clash of priorities between my appearance at the crease and my culinary duties. Was this because the former lasted so short a time? Anyway the team, their ladies and children spent many happy hours in our sylvan setting, the kids paddling in the brook, the ladies nattering and the midges biting.

It was at Whitewebbs that John Leutchford took his ten wickets, but at Potters Bar against Ted Mills' neighbours, Elm Court, that Bris scored his zero in more than one hour of stylish defence. It was against this same team that we played our very first match.

D.A. Weir



I can never remember there being a clash of priority between my appearance at the crease and my culinary duties

TAXI!

An amusing incident occurred after I had returned to the laboratory and had been working on a high power oscillator at around 120 MHz. For some weeks after completion



Making a beeline for the Labs

I was using it as a signal source in conjunction with varactor diode frequency multipliers when a colleague looking out of the window towards Potter Street noticed two gentlemen carrying what appeared to be heavy boxes making a beeline for the laboratories.

We watched with considerable interest, especially when they climbed the perimeter fence and headed straight across the rose beds and we noticed the directional aerial. Since there was no entrance to the labs except through the front door, they made their way around and, accompanied by one of the security staff,

arrived at D Building on the ground floor where they drew a blank. As the visitors came into our lab on the first floor I switched off the generator which proved to be the signal the Post Office engineers had been tracing.

They told us that the local taxi services had virtually lost the use of their radio communications during the past few weeks that we had been using the signal generator (without an aerial) at maximum power.

V.H. Knight

THE JACKDAW

It was at Frogmore Hall in the 1950's that the late Sid Green befriended a lame Jackdaw, which to the staff at the time was considered a noble effort.



The problem came when the weekend was approaching and there was nothing for it but to take the injured bird home.

Sid duly manufactured a perch which was fixed to the passenger seat of his car and all was well... but some of the other motorists on the A10 displayed some very erratic driving.

G.F. Hiles

THE HAPPENING

It was Christmas time a few years ago now and things were all set at STL for the festivities. Drinks were surreptitiously imbibed in offices and labs as a prelude to the dinner celebrations that all were looking forward to. Some hundreds in each section were to eat and drink together in the Canteen, an occasion most people looked forward to as their annual hair letting down, where all departments mixed and all grades of employee from director to cleaner became, for an hour or two, equal guests of the Company.

Most of our section were settled in their places and there was quite a hum of expectancy, waiting for the dinner and the first wine bottle to be uncorked, when a sudden hush fell on the assembly as six nuns and a friar entered the Canteen quietly, modestly, and with their eyes downcast took their place at table. The poor Canteen Manager was having kittens, nobody had told him of the seven extra guests; what was to be done. What a damper on the seasonal revelry!



And the nuns behaved as no nuns should ever behave

The visitors raised their eyes ... it was the Library staff ... so well disguised that even their best friends didn't know them. We had told no one of their intentions, a rare achievement for any of us.

After the initial shock the laughter and congratulations certainly set the dinner swinging and the nuns behaved as no nuns should ever behave, drinking, smoking and sharing ribald jokes and generally raising the tempo of the occasion. I was one of them and am sure it was the best Christmas dinner at STL that I attended.

Needless to say Audrey Thornhill has never lost the title of Mother Superior and always had a job to keep her little religious band in order.

Lily McColgan

THE PIPES OF STL

The well being of the STL Enfield Laboratories depended on at least two occasions on judicious application of some very large pipes.

Our first STL winter was prolonged with frequent and lengthy power cuts due to the heavy wartime toll on power plant and fuel supplies. Such electrical power as could be squeezed, often from standby generators, was needed for laboratory work and couldn't be spared for heating. Gas was of course harder to cut off and although the pressure fell there was a continuous if meagre supply. Some genius soon discovered a remarkably efficient method of gas 'central heating'. Take one long wide metal pipe, suspend it vertically from the lofty factory-type roof and put a bunsen burner under the lower end. This installation would soon be radiating lots of lovely heat into the very corners of the lab, the pipe glowing a dull red. There was a curious side effect. Such a system excites the natural tone of the pipe quite strongly and, as this heating practice spread rapidly through STL, every laboratory could be recognised by its characteristic organ note. Meanwhile I'm sorry to say, our wives and families were shivering at home.

The Progress Way building, designed as a factory with a typical north light roof, was very vulnerable to the heavy rainstorms we experienced from time to time. Water would rise rapidly in the roof gulleys, find its way through the glazing joints, and descend onto the labs, damaging equipment, fittings and paperwork, to say nothing of people. Cans would appear like magic to be disposed under the worst leaks but it was rather like Canute trying to stem the tide.

Arthur Brown and his merry men came up with a solution. Throughout the building at strategic points they installed really massive downpipes to carry floodwater from the roof gutters to a network of drains below the floor. This was completely effective.

We soon noticed in our lab that we could now detect the onset of even the slightest shower because we could hear the water trickling in the local downpipe. The sound became stronger the heavier the downpour. I well remember one tremendous thunderstorm when the noise became a mighty roar, but then stopped with dramatic suddenness. What had happened? The storm could hardly have stopped in an instant. I put my hand on the pipe and the truth began to dawn: it was absolutely full of rushing water and you could feel the vibration even though you couldn't hear it. Arthur's dyke held and the system survived even that severe test.

T.H. Walker



We soon noticed in our lab, that we could now detect the onset of even the slightest shower.

A LOVE STORY

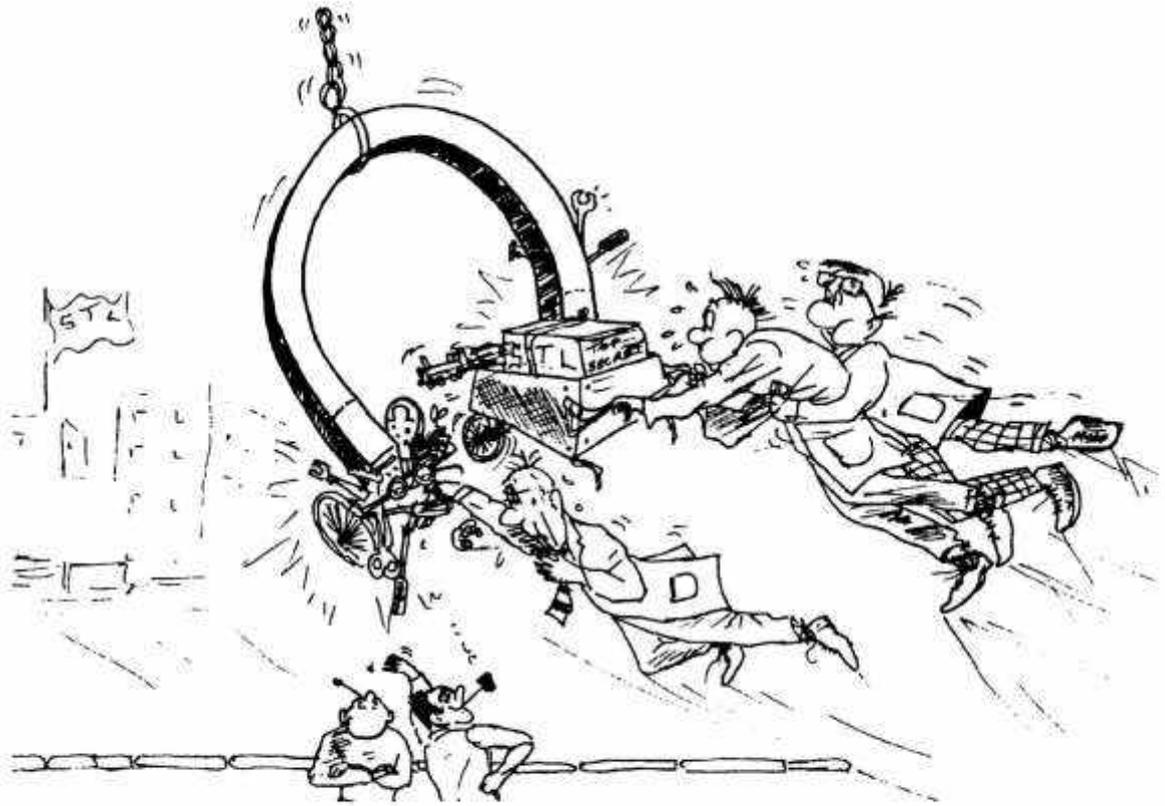
Most people in our line of business knew of Alec Reeves, generally accredited the inventor of pcm. He became famous when pcm was used for early space flight communications. What few people know is that he was trained as a mechanical engineer and accepted electric concepts only with misgiving and difficulty. And so it came to pass that when, at STL in the sixties, he set about developing his latest idea, the instantaneous coder, he was driven to construct a mechanical analogue which took the form of a switchback railway. Early tests showed the need for some form of damping which Alec decided should take the form of an eddy current brake. However it soon appeared that a very large permanent magnet was needed and finally one weighing well over a hundredweight was bought and duly installed.

So far, so good; but when the IEE invited Alec to lecture on his achievements and future aims nothing less than the transport of his whole model railway to the IEE lecture theatre would satisfy him. The lorry duly arrived and the railway was disassembled and the parts carried down. However the magnet presented a problem and the removal staff finally decided to use a wheelbarrow to carry it along the narrow corridor from lab to lorry. Unfortunately they chose a steel barrow for the job. From the moment they met, magnet and barrow were irresistibly attracted. In no time at all they became fast friends. They resisted any attempt at separation and only with great difficulty were they manoeuvred eventually into a position in which the barrow could be wheeled along the corridor. A hand crane lifted the magnet onto the lorry. The wheelbarrow came too. Two men stood on it but the soul mates were not to be parted; they kept together until a wooden wedge finally achieved their separation.

The tale should end here, but it doesn't. At the IEE a similar narrow corridor had to be negotiated. However the magnet was now well insulated from the barrow by a block of wood. It just so happened that this corridor was lined with showcases exhibiting early telegraph instrumentation, most of it extremely sensitive to magnetic fields. As the magnet passed by a large proportion turned to observe progress and not a few were so moved that they left their places for a better view.

The lecture was a complete success!

J.C. Emerson



In no time at all they became fast friends

THE ENDORSED LICENCE

An indication of the spirit which inspired the early STL is given by what happened at one of our dances. These were always very well attended with nearly all the two hundred or so staff turning up to enjoy a pleasant evening under the genial MC'ship of "Rog", (P.J.Rogers, our Personnel Manager). Among the spot prizes was one for anyone with a current endorsement on their driving licence. I'd just been fined for speeding in my battered old Morris 8 tourer and so brandished my duly endorsed licence triumphantly. This was some compensation indeed! It didn't occur to me until much later to wonder why such a curious qualification had been chosen — we were such a close knit group that my misfortune had been noted and people cared.

D.A. Weir



This was some compensation indeed

“HG” UNDER ATTACK

The Television Room in STL Enfield was a separately partitioned and covered space within the main building affording semi-dark conditions for experiments on TV projection and the like and advantage was taken of the space above the ceiling to store miscellaneous items of equipment. On the day in question Messrs Brewster and Hiles were engaged in sorting through this stuff while their boss, Harry Grayson, was standing deep in thought in the open laboratory space just below.



And an almost irresistible instinct to keep their heads down

As to the next move, Arthur attributes it to Fred and Fred attributes it to Arthur. Certainly a cathode ray tube became inadvertently dropped, bursting as it hit the TV Room roof, and one smallish piece of glass shot over the edge descending onto the top of Harry’s head where, to say the least, he was not too well protected.

Arthur and Fred were at this point torn between an irresistible urge to see what was happening and an almost irresistible instinct to keep their heads down. The result was instantaneous and quite dramatic. Harry just rushed out of the laboratory at high speed. The instigators were thus

left in some trepidation, wondering whether Harry was actually hurt, whether the sudden impact had reminded him of an urgent appointment or, indeed, whether he might return at any moment with their ‘cards’. Most of these questions were soon resolved when Harry returned clearly in good health and good humour. Perhaps there was still some element of mystery remaining but certainly Fred and Arthur were not disposed to make further enquiry if Harry didn’t. Harry never did!

What worried me when I heard about it was that the incident evidently failed to wake me at my desk in the TV Room beneath. Had I known that those two were wandering loose over my head, let alone hurling CRTs around, I also would have beaten a very rapid retreat.

T.H. Walker

“SOMETHING”

All this happened during a period when I had been working single handed for some five or six weeks in Goods Receiving and was beginning to get a bit frayed at the edges.

It was a lovely summer morning with no hint of difficulty or trouble. I should have known better! A huge articulated lorry drew up outside with a vast load sheeted over. It seemed unlikely to be for us, so I asked the driver if it was for STL. To my horror he said “Yes Mate.” Going visibly pale I said, “Where’s it come from?” The answer was even more strange, “I dunno mate, all I had to do was pick it up at London Airport and deliver it to you”. ‘It’, whatever it was, weighed 9.5 tons! Swallowing hard I asked in a rather weak voice for the paperwork. The answer shook me even more, “there ain’t any mate, all I know is it came by air from America”.

So I was landed with something that weighed 9.5 tons but I didn’t know for whom it was intended or where it had come from!

The ‘something’ took up the whole back area of Goods Inwards, and the various packing cases were all labelled “Delicate Electronic Apparatus. To be opened only by a Qualified Electronics Engineer”, so I couldn’t even open the damned things.

Have you ever tried ringing Managers and Engineers saying “Oh, good morning, I have a something weighing 9.5 tons; I don’t know who sent it or to whom. Could it be for you”? The answers taught me a lot I didn’t know about myself!

The end of the story? Yes, well some six or seven weeks later — after a deal of detective work, it appeared that some months previously, an engineer from STL had visited a company in California where, with some pride, he was shown ‘the thing’.

It was greatly admired and certain remarks were made by the visiting party. As a result, when their project was finished, the American company sent ‘it’ to our engineer “with their compliments!”

The fact that ‘it’ had originally cost £80,000 and had been air freighted from California hardly seems relevant!

B. Olford



Something!

GROCK

When we first went to Frogmore Hall to erect a third of a mile of waveguide on a prepared site in October 1958, one of our number quickly made friends with 'Grock', a cocker spaniel with a pronounced liking for men. He 'lived' in the hut in which we made our measurements from around 0900 hours until we left at around 1700 hours when he went home to the 'Cottage' in the grounds.

This 'love affair' continued through 1959 and part of 1960 until one day he set off as usual occupying the passenger seat in the Land Rover when one of our number drove to the far end of the waveguide run to check that all was well with the equipment at that end. I was fairly busy making measurements when suddenly I realised that John had been gone a long time.

An ex-army telephone which connected the two buildings began to crackle and when I answered a very puzzled John reported that the Land Rover had disappeared! While I made my way down the path beside the waveguide run I was thinking that there was little likelihood of someone stealing the vehicle as it was well off the road.

On arrival at the point where the vehicle had been standing we scouted around looking for tyre marks of which there was no trace, nor were any of the bushes broken as we went down the grass covered hillside. On arrival at the bottom of the hill we found the first traces of the progress of the Land Rover, where the front bumper had scraped the roadway (from the north gate) and the wire on the opposite side was broken. It still took several minutes before we found the vehicle standing patiently within six feet of the little River Beane. Of the dog there was no sign and he never returned to the site again.



V.H. Knight

EVERYTHING BUT...

“Everything but the kitchen sink” springs to mind here. Part of my work entailed finding housing accommodation for the staff and also for members of associated companies overseas coming to work with us. On the arrival of a senior member from Germany with his family, I took them to see the house we had earmarked for their approval and one of the first comments he made was “Can I have permission to remove the sink in the kitchen and put in my own which I have brought with me?”.

C. Winnicott



Ve haff vays of blinkum moving da sinkum from da kitchum Ma Ma

BREWSTER'S BRIAR

Arthur Brewster at one time had a pipe carved in the form of a skull. It was fascinating to watch as Arthur held forth on self-balancing bridges, start-stop regenerators etc while smoking this thing. An even stranger fascination attended the times when Arthur's pipe would suddenly decide to go "walkabout" or rather "flyabout". It would somehow escape from Arthur's lips and make off up, down or sideways. On these occasions Arthur would not even pause in his discourse but his hand would shoot out unerringly to retrieve it just as it threatened to go into orbit. Sometimes the first attempt at recovery would simply cause the truant to change direction and a sort of chain reaction would set in whereby Arthur's arms would fly rapidly in various directions, rather like a semaphore signaller taking up juggling. To the best of my knowledge the fugitive never actually succeeded in escaping and Arthur pursued his argument throughout, just as if nothing was happening.

I have often wondered whether these incidents were entirely fortuitous or rather due to some inherent magical property of the pipe itself. Certainly its appearance tended to encourage the latter theory. Come to think about it, I can remember seeing Arthur fill the thing, but I don't ever remember seeing him light it!



T.H. Walker

but I don't ever remember seeing him light it

GARDENING

Some years ago STL entertained some very important visitors — I believe they may have been members of a continental consortium. Fred was instructed to pay special attention to the grounds — they had to be immaculate, lawns cut to perfection, no weeds to be on view etc. For two or three days he worked really hard and then on the great day retreated to his greenhouse. At some time during the day the VIP's were shown over the grounds. They apparently expressed interest in the greenhouses and to Fred's intense surprise converged on his 'patch'.

Now Fred, as you may know, was a great one for propagating plants and it so happened that he had various trays of young plants which were not really in keeping with the eminence of STL. They were in fact for his allotment and consisted of sprouts, cabbage, lettuce, turnips, swedes etc. The visitors were interested in the seedling plants and wanted to know what they were. Fred was nonplussed for only a second and then he calmly explained what summer planting he had in mind for the grounds and pointed out the various seedling trays of forthcoming "flowers", so that carrots, cabbage, sprouts etc became begonias, salvias, asters..

He said "It was a nasty moment but after all one would not expect those sort of people in high places to know anything about gardening and I took a chance!"

Mrs. James



I believe they may have been members of a continental consortium

THE DUPLICATOR

Very soon after things got going at the labs we had to deal with a rush job to get out E.P.G. Wright's European Toll Plan. Joe Rice and I were responsible for the general form, Mrs. Loveseed for consistency, while the typing was done by the 'Typing Pool' — or should I say 'Typing Puddle' — as it was only one enthusiastic lady. The forty page contribution to the CCIF (as it then was, now CCITT) was completed, it now merely required duplication. But we didn't have such a thing as a duplicator at STL; we could have had an Ormig done at Southgate but this was not acceptable. So we had to prepare a jelly in a shallow tray and knock off the copies by inking the stencil onto the jelly and then rolling off the copies with a squeegee roller! Not a pretty sight but the date was achieved and Europe had the ring coaxial that E.P.G. felt that it needed.

D.A. Weir



Or should I say typing puddle - as it was only one enthusiastic lady

CUSTOMS

There was a big presentation in Brussels with Harold Geneen and his minions waiting to see what STL could do. A large amount of equipment for the presentation was being taken over at the weekend in preparation for an early Monday start. All went well until Freddie Hiles and his helpers arrived on the other side and met the Customs Officers who refused to allow them through without a cheque for £2,500 surety. After a bit of dithering and a nervous thought about his bank balance Freddie wrote out the cheque, bearing in mind that it was a weekend and that the British Banks would be closed — after all he had all of £2.50 in his account at the time. Needless to say, all went well.

Betty Evans



Needless to say all went well

THE ATHLETIC AND SOCIAL CLUB

One season commenced with a dance at Beales Restaurant, Holloway Road on 14th October 1949. The hall was filled to a comfortable capacity and dancing continued until 11.00 pm to the music of Len Henshaw's Band. Mr. T.R. Scott and Mr. S.A.B. Ward again proved their skill in passing the hat, whilst Mr. P.J. Rogers displayed hidden talent as a ballet dancer. The success of this function was made evident by the many expressions of appreciation and requests for a "repeat performance" at a not too distant date.



Whilst P J Rogers displayed hidden talent as a ballet dancer

INTERNATIONAL INCIDENT

In the 50's Dr. Joe Evans and I made a number of trips to Universities and the like lecturing on semiconductors which were, at that time, very new and very primitive. Joe would kick things off by discussing the devices after which I went on to deal with applications. Only those who have at some time tried to follow Joe in such a presentation can appreciate what an impossible task this was. It had its advantages though since one could always rely on Joe's ready wit to deal with awkward questioners. Furthermore I would console myself with the thought that, brilliant as Joe's exposition may be, all this talk of a wonderful semiconductor future must surely be a bit overdrawn. The point contact, and even the junction transistors, around at that time were fascinating playthings but if you needed something to do a real job of work then it had to be hard valves. How wrong I was! If Joe erred at all it was in understanding the speed and the totality with which semiconductors would overtake thermionic tubes.

There was one occasion when Joe deliberately chose to leave the limelight with me. We had been lecturing in Edinburgh and were travelling in my car. I was driving along Princes Street where the major junctions were largely controlled by burley Scots policemen and as we came upon one such there was a lorry approaching along the side road. The traffic cop gestured towards me and I assumed he meant me to continue but his facial expression as I drove on suggested I might just have been mistaken, so I stopped rather a long way over the line. As he strode menacingly towards us I opened the window and stuttered "Very sorry, I thought you were telling me to go". The face lost its angry look and took on one of utter scorn, clearly reserved for Sassenachs.

I looked round for Joe, confident that his ready wit would, as usual, extricate me from impending doom. Now I do not believe that Joe's undoubted courage had failed. I think he simply decided that in this particular case the Principality should opt for neutrality. Certainly he was taking maximum advantage of a somewhat compact physique, his head having disappeared well below dashboard level.

The law was, by this time, alarmingly close and with an indicative nod towards the now stationary lorry spoke: "Hets a guid thing his brrrakes warrked isn't het." With a final and, this time quite unmistakable, gesture he dismissed me clearly wishing me out of his sight. Only too relieved I needed no second telling and we were soon heading for the border.

T.H. Walker

EPILOGUE

There were many more stories that you sent in but that, for reasons of space, we were not able to use.

There were the stories involving all kinds of power failures and the many ingenious ways the resulting difficulties were overcome, It is a wonder some of you are still alive to tell the tales.

Batteries seemed to feature very prominently in the stories. Some of the solutions were almost unbelievable — but worked. Potatoes, prawns and other foods destined for the table have managed to become the subject for experiments carried out in front of visitors who always called at lunchtime. Mushrooms flourished and wine flowed.

Dashing young men were not always what they appeared as was demonstrated when a gust of wind dislodged a wig and circulated it around the car park before depositing it as an unbecoming mascot on a car bonnet.

One engineer, who did not own a wristwatch, had a telescope trained on a clocktower so that he could find out the time, or so his colleagues were told.

Numerous telephones were mentioned, some whose fate was to end up in a shape not at all resembling their original design.

What's in a name - when the garage was asked to store a Rolls-Royce they thought that they would be the guardians of a fine motor car; instead it turned out to be an aircraft engine.

The cheapest lunch ever taken in the restaurant may have been that taken by an engineer who would pour out a glass of water, add a spoonful of sugar and slowly drink it down.

One young laddie who had led a sheltered life and who was preparing himself for his wedding turned to the knowledgeable people at STL for advice on how to conduct his married life. He was not let down by the numbers of willing instructors who volunteered to assist but eventually he decided to cope with the new venture himself. Like most activities at STL it turned out to be most successful.

We could go on; perhaps one day an STL Scheherazade will continue the stories to one thousand and one.