

Glimpses of the Past

by George Toms

No. 14

Light Machines

It can be traced back to 1891 and lasted until the mid 1980s. The Loughborough period was but a brief period of that timespan, but it was unique. It is easy to paint a rosy picture of events past, but when something good existed it is difficult not to praise its commendable efforts.

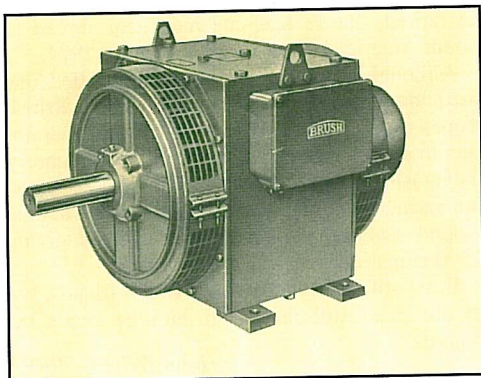
As with many electrical firms, Brush had for many decades produced small rotating machines, indeed the business was founded upon them. Over the years it acquired some of these other firms, including the Hopkinson Electrical Co. during the early 1950s.

Hopkinson's had itself acquired other firms too, and the thread went back to 1891/2 and the Langdon-Davies Motor Co., which became the Brittain's Electric Motor Co. Ltd and later was incorporated with Hopkinson Motors & Electric Co. Ltd. Hopkinson's (Hoppo's to many) was based at Kilburn, in London, but following World War 2 was encouraged to move out to one of the various Development Areas. This move, to Cardiff, occurred in 1947 and was followed several years later by the acquisition by Brush, which combined the operations with another Brush acquisition, Flather Electric Motors of Leeds. The factory at Cardiff was brand new and situated at Birchgrove. It was one of the most up to date in the United Kingdom, being laid out in a most economical manner with minimum movement between the different stages of production and labour-saving devices. Line flows were predominant features of production. Les Goodeve remembers that some operations and fitting out started before the roof was in place!

In 1955 Brush decided to close the Cardiff factory and move operations to Loughborough during 1956. It settled in 11 Shop, then located between the old canteen, the Coil Shop, and Central Machine Shop – where the Rapid Transit Module is today. There was a fusegear section, which soon moved into the nearby switchgear shops and then to Burton on the Wolds. About 25 personnel came up from Cardiff and about half stayed. Brush assisted the move and those involved found homes around the district.

Almost totally self-supporting and self-contained for many years, Light Machines (Small Motors to some) was a prolific producer of alternators, AC motors, DC motors, traction auxiliary motors, and in later years motor alternator sets and flameproof mining motors. It was one of the best shops to serve an apprenticeship, the variety within the shop stood a lad in good stead for the rest of his working life. It had a unique sense of humour, never quite understood by the rest of the works. There was an enviable sense of teamwork regardless of which part one belonged to. If there was a design problem, then Peter Roberts would come down and be welcomed in the usual manner! Try this, try that – he was always helpful; and that is how most of the people were anyway.

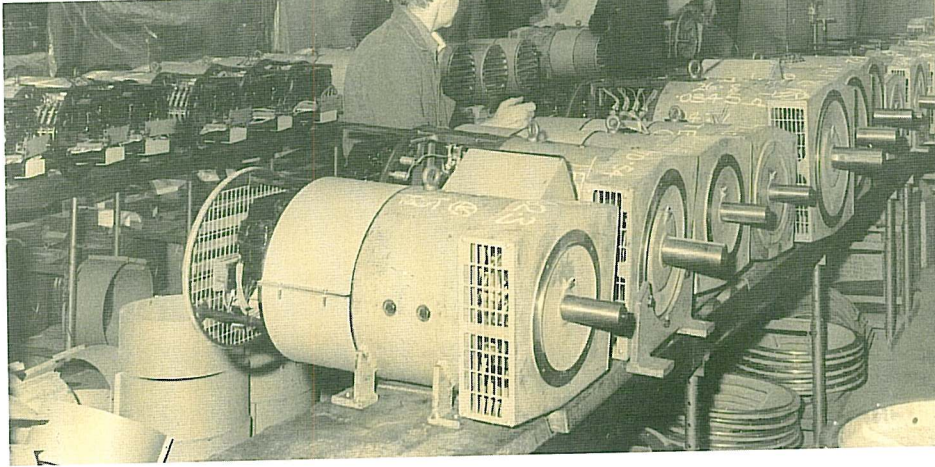
In the mid 1950s alternator production relied upon the new self-excited 'Square Path Alternator' range with outputs from 1½ to 35kVA and frame sizes SRA1 to SRA40. There were separately-excited versions available. They were rugged, square-framed machines, built like battle-ships and almost indestructible.



A Brush square path alternator of the mid-1950s which was one of a range with outputs from 1½ to 35kVA.

They had been introduced during the 1953-6 period, replacing cast, round-bodied alternators of the A range. During the mid-1960s they became dated and gave way to the SCA range, which relied upon rectifiers for self-excitation purposes and was still in production in the late 1970s. The square-framed SOA range (SOA 419 to SOA 749) was added to the SRA range and extended the outputs available. This too was in production until 1979.

From 1962 the rolled steel, round-bodied SCA range (SCA 111 to SCA 320) was gradually introduced, although for a time there was a hybrid square-body version in production.



Another round-bodied type came in circa 1969, the RS range (RS 1A to RS 4C) which supplanted the lower SOA range outputs and was in full production in 1978. Like the SCAs, this range was produced in countless thousands over the few years of production.

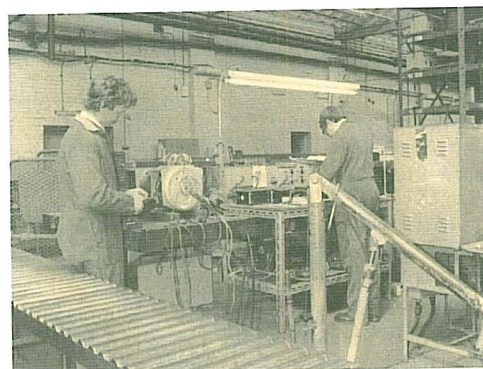
By 1972 technology had increased the outputs well beyond 100kVA with the BCS brushless alternator. These brushless alternators were nothing less than superb, far superior to anything that competitors could offer, often with no voltage variation even at 150 percentage load. Competitors were often pushed to obtain as low as 10 to 15 percent voltage variation.

Induction motors were manufactured in a variety of sizes, although some were bought in. By the early 1970s a new range of flameproof had arrived and was extended during that decade. Today these little E Types are still being produced. DC motors were produced for industrial purposes and of course there were long runs of DC traction auxiliary motors from the late 1950s to the late 1960s. Then there were the DC battery electric motors, a range inherited from Crompton Parkinson and developed by Brush (painstakingly under the guidance of Ken Pepper). The early 1970s saw the first of some 1600 motor-alternators for British Rail, some of which were fitted on the Royal Train. There were many other trends and machines, but what of the people who produced these small machines?

Whether it was a division or a department, its status varied from time to time, it mattered little to the people within. They cheerfully got on with the job. They were a varied lot, ranging from the extremely superstitious Digby to one poker-faced, but respected manager whose eagle eyes usually never missed anything. Only one item escaped his notice to my knowledge and that was the Test Section's dark room, a home-made 'Tardis' behind the test panels which only came to his notice when a replacement was required following its destruction by scalding steam escaping from a fractured overhead steam pipe. He had to see it before he sanctioned a replacement!

One head of Light Machines, the late Keith Herbert, performed a memorable act of declaring a large new storage rack for stock alternators well and truly open. He pushed the first machine through on the lightly-graded rollers and was dismayed to see it override the safety stop and plummet to earth!

The commercial, design and other offices were in the three-storey block adjacent to the railway. A long gone feature of this block was the message tube connection with the main offices, operated by either compressed air or a vacuum system. There were other offices inside the shop proper, located on one side in the two-floor, former Coachworks offices. On the ground floor were the foremen's offices and the inspection office, the latter housing two inspectors, their chairs and one table, with hardly sufficient room to open the door.



'The Line'. Another late 1970's view of testing SCA alternators with the late 'Sam' Amis (left) and Colin Joys.

A busy scene in the late 1970s, with dozens of RS alternators lined up (and not posed) in the preparation for despatch area.

The late Jack Boys was a keen follower of hunting. When he retired over twenty years ago, he made an impression upon his workmates with his hunting horn. His presentation group includes (front row left to right): George Deacon (a one-time Mayor of Loughborough), Frank Bestwick, Jack, the late Keith Herbert and the late Eddie Eccles.



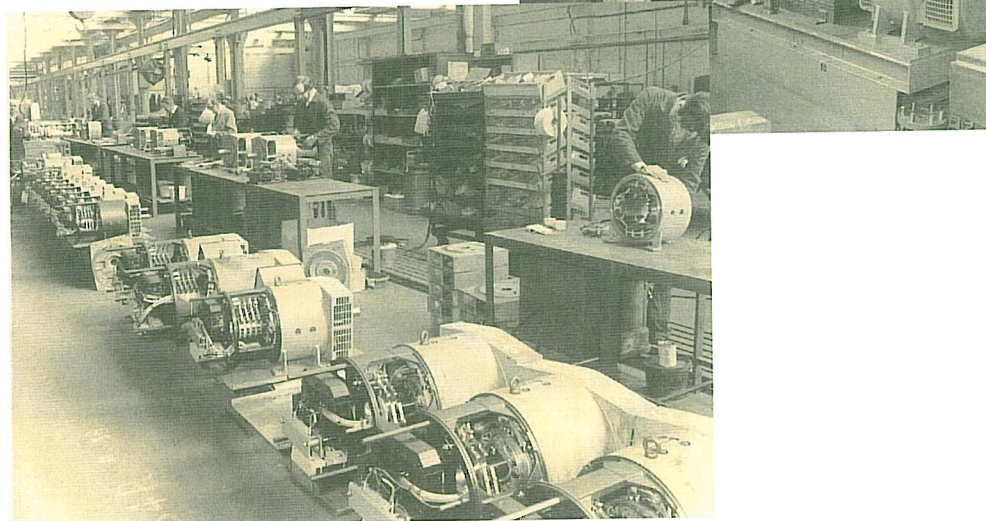
The winding section was mainly staffed by women, and a formidable bunch too! The stores held one youthful and rotund Maurice Deacon, expert cricketer and son of one of Loughborough's celebrated Lord Mayors, George Deacon, also of Light Machines. The shop also boasted another Lord Mayor in its time, Mr Warburton. Bangs and flashes were provided on occasions by the test department to add a little excitement to production testing. The cleaning out of the spray booth was an opportunity to even old scores with George, the irascible incumbent, once he was inside the evil-smelling thing that is!

Production figures ever increased, particularly for alternators in the 1960s and 1970s. Two engine manufacturers in particular (Petters and R A Lister) ordered thousands of stock machines for eventual fitting on combined bedplates. Battery electric vehicle motors were produced in prolific numbers also. Some of these motors were supplied to the motorised wheelchair industry and were well-liked by their users – in one instance a patient still liked his Brush-propelled vehicle, despite being deposited into a hospital flower bed at the bottom of a ramp. Design was called in to limit the overspeeding capability of motors after this!

The sheer variety of small machines was something to be marvelled at, and it is noteworthy that all types were in quantity production. Overhead travelling cranes were in great demand for movement of the larger types, but roller tracking flow-lines generally provided easy movement along the production lines and almost avoided the use of cranes.

Year by year the production targets increased and about 1973 the canteen was occupied and shop layout improved. Keeping a keen and fanatical eye on production was the ubiquitous and excitable Les Goodeve, one of the Hoppo survivors. Under his relentless control the output topped the 500 machines a week mark – yes, 500 machines of a multitude of varieties! It was no mean achievement for all concerned.

The final assembly area for RS alternators in the late 1970s. Sixteen alternators are lined up ready for test, a regular sight which greeted test engineers each morning at 7.30!



Just before this occurred some people in Light Machines were preparing to go to Iran, where an alternator production facility was planned. Many looked forward to something quite different, but it never materialised, probably due to the changing political situation in that country.

It was 1978 when the bombshell came. A decision was taken within the Group that Light Machines and its alternator production was to be transferred to Electric Construction Co. of Wolverhampton. It was a bitter blow to all concerned, particularly as the magic 500 had just been topped, and from the autumn of 1978 to the summer of the following year the move went on and people left. Only a handful of people went to Wolverhampton, and then commuted daily for several years from Loughborough. About 1985 the ECL works closed and that was it.

Back in Loughborough the survivors regrouped as part of the Mining Division, still in 11 Shop producing BEV motors, small E Type flameproof motors and motor-alternator sets. First to go were the BEV motors, then the demand for motor-alternators was satisfied. Larger flameproof motors were transferred into the shop, and after a few years, in 1990, came the move to the latest shop opposite the Control Centre. Currently there are further changes in progress as the current traction works runs down.

A few former Light Machines people still survive around the site, but many more may be found in retirement as time marches on. Few things stand still, change is often necessary, but one can look back and say quite proudly "We had something good going there".

My thanks go particularly to Audrey Carter and Messrs Peter Roberts, Maurice Deacon and Les Goodeve for their help, which has been appreciated. Others have related stories which, however entertaining, graphic or true, cannot be placed in print!

If you have any information relating to this or any other period of Brush history, please contact George Toms, preferably by internal mail, c/o Main or Mining Test.

Testing an RS alternator, courtesy of the late Andy Dabrymple (left) and Peter Wood.

