

MAY 20TH, 1925. THE WIRELESS WORLD ADVERTISEMENTS. 15

VALVES repaired Quick!



We are actual makers of valves, therefore we can repair and exhaust the valve to give the necessary high vacuum. In fact we do this job so well that We guarantee:—

Same Amplification. Same Radiation. Not to consume more current.

Space won't permit of full price list here, but we'll gladly send you **BOOKLET** post free on request. Here are prices for the most popular types of valves,
Bright Emitters 5/- **Dull Emitters: 2 and 3 Volt types 7/6**
 Post free.

If your dealer is not alert enough to collect valves, for RADION repair, send straight off to us with remittance and obtain real prompt service.

RADIONS LTD., BOLLINGTON, NR. MACCLESFIELD.

5/- EACH POST FREE

Dull Emitters: 2 & 3 volt types, 7/6 post free.

Free Booklet entitled "How long should my accumulator charge last?" gives this information and curves of RADION valves—high in performance, low in cost. Send Now.

A TALE OF TWO MILLS

Note August 2007: this investigation was made during 1981 and the use of the present tense applied to people, companies and buildings was correct at that time.

It may surprise many people that in Bollington, Cheshire, electric lamp bulbs and valves for radio sets have been made there since World War I.

This story begins around 1918 when Crowther and Osborn Ltd. opened the SCEANDO household electric lamp factory in part of Lowerhouse Mills cotton factory in West Bollington. Unfortunately, it is not known who Messrs Crowther and Osborn were. Using glass made in their own works in Bredbury, they began at Lowerhouse a 63 year period of loyalties, battles with giant monopolies and within themselves, production ingenuity and for the age high technology,

An early employee, later to dominate in management for 30 or more years was a Mr. Pattison. He came from Leeds where he had been production manager at the British Lion lamp works. Previously he was with the Edison Swan Electric Company in Ponders End, Middlesex, making glass eyes for soldiers blinded in the war and before that he was at the B.T.H. 'Mazda' lamp works in Rugby.

WIRELESS

DON'T SCRAP THAT VALVE ON ACCOUNT OF

Burnt-out filament,
Broken Bulb, or
Internal Shorts.

The Makers of
SCEANDO Electric
lamps will repair them.

STATE VOLTAGE. Send cash **6/6** each.

If not repairable, cash
and bulb returned.

TRADE QUOTED.

CROWTHER & OSBORN LIMITED,
LOWER HOUSE MILL,
BOLLINGTON, NR. MACCLESFIELD.
BANKERS: The Union Bank of Manchester Ltd.

The SCEANDO company's lamp making foundered in late 1923 resulting from patent litigation by a ring of monopolistically minded lamp making giants which stopped essential supplies of drawn tungsten wire used for the making of lamp filaments. Up to that time SCEANDO had found itself a ready market supplying Woolworths under contract. Had this been the start of the Woolworth 'Sunshine' brand?

Alongside is a C&O advertisement placed in 'Wireless Weekly' and dated May 1923. The advertisement is rare and must have been one of

the last prior to the formation of Radions Ltd.

Mr Pattison (Jnr) said that Sceando went into voluntary liquidation, together with their glass works.

Undaunted by the collapse of SCEANDO, the imagination and energies of Mr Pattison and colleagues turned to the infant wireless industry. Broadcasting had begun in late 1922 under the then British Broadcasting Company from transmitters in London, Birmingham, Newcastle and Manchester at Trafford Park. Who can remember “this is 2ZY calling” crackling through the earphones of a crystal set?

Amongst the well-to-do there was in 1922 a ready market for valve wireless sets. Commercially made sets cost in the £8 to £25 region with their valves costing 12/6^d each (75p) from Marconi, Osram or B.T.H. This was at a time when a skilled man would have been earning perhaps £2 a week and an agricultural labourer earning perhaps as little as 10/- (50p).

So the firm of Radions Ltd. was formed in 1923 with the clever idea of repairing radio valves. It is thought they started in Lowerhouse Mills but must have become permanently established in High Mill, Lord Street, Bollington fairly soon afterwards in late 1923. The company used various spellings of their name but it’s thought Radions Ltd was correct. Other spellings include Radion as found on valve boxes and Radion’s Ltd as it appeared on the side of their van.

Curiously, their advertisement placed in ‘Wireless World’ in May 1925 still shows the unmistakable image of the Lowerhouse Mill – see the head of this text – but it’s known that by then the company was already in High Mill.

In those days, new radio valves lasted only a few hundred hours before their filaments burnt out and together with the weekly cost of re-charging the 6 Volt accumulator and buying high tension batteries, ‘listening-in’ as it became known could be expensive. Priced at less than new valves, Radions found a ready market and later made a range of new valve types of their own, always priced below those of the larger makers’. Committed to British industry, Radions were members of the broadcasting company and older readers may remember the ‘BBC’ mark which appeared on their valves and early wireless sets.

MODERN WIRELESS

November, 1923

RADIONS Ltd.,

Beg to announce that in consequence
of their ever-increasing business in

Repairing Wireless Valves

they have now taken extensive works, and equipped them with the most modern plant. This plant is operated by a highly-skilled staff, and they are now in a position to give the utmost satisfaction, combined with PROMPT DELIVERY. Write for Prices and Particulars.

RADIONS Ltd.,

LORD STREET,

BOLLINGTON, nr. MACCLESFIELD.

Telegrams:
"Radions, Bollington"

Radions were set up initially to repair valves. Bright emitters were repaired for 6/6d (32½p) at a time when new ones cost about 8/- (40p) and dull emitters such as the BTH B5 were converted to bright emitters. Radions, like others in the repair business, did not repair using thoriated tungsten ‘dull emitters’, possibly because only lamp grade tungsten wire was available at a price but more likely because it would take time to master the use of thoriated tungsten wire. By

repairing valves, Radions avoided the valve making patents, a problem also exercising the ingenuity of the Cossor company.

Alongside is their advertisement placed in 'Modern Wireless' and dated November 1923. It must have been one of the very first after Crowther & Osborn closed down at Lowerhouse.

But by 1924 Radions were making new valves, how the patents of the Marconi Company were avoided is not known.



It is believed Radions made most of their own machinery to process the intricate assemblies. This required the replacing of the hair-thickness tungsten filament wire but it was not an easy task. The bulb, already under high vacuum, had to be opened in a high temperature flame at opposite ends across the bulb (in one way), the filament replaced and

then the holes in the glass made good and evacuated once more to a high vacuum using pumps similar to those perfected at Sceando for lamp making.

The photograph shows two of Radions' own valves, still operational after more than 50 years.

Older residents may remember 'lighting the filaments' of the very early wireless sets and the brilliant white light from these early radio valves.



Radions occupied that remaining part of High Mill today occupied by Shrigley Dyers, but then all the four floors were in use and accessed, Mrs Burke remembers, by a great stone staircase.

The need for outside technical support is evidenced by their retaining Professor A.M. Low as a consultant as early as 1925, giving rise to the brand name 'Professor Low's Super Radions Valves', a term used as late as 1927. Further technical support came with the arrival of Mr R. Sinclair and two other employees from A.C. Cossor in or about the spring of 1925. Mr Sinclair, a stepbrother to Mr Bullimore, owner of Cossor Ltd., later married Mr Pattison's daughter. It is suspected that the particular skills brought by Mr Sinclair included that of filament coating that materially improved the performance of valves and reduced

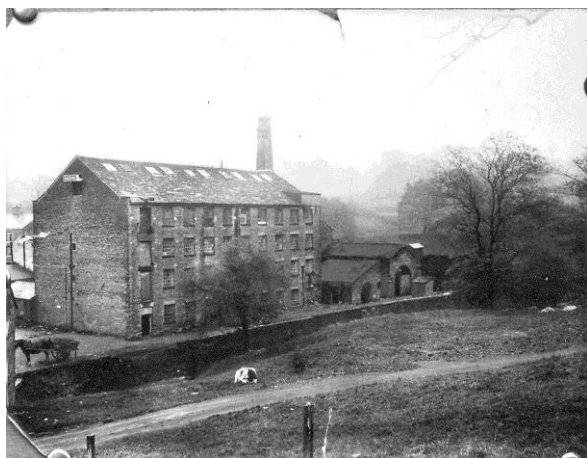
power consumption.

That Radions were not content with just making repairs to early valves and brought in experts from the valve industry suggests a determination by them to lead in the field.

One former employee of Radions, Mrs Burke, recalls that it was a happy firm and remembers the technical manager, Mr Sinclair, bringing valves straight from the vacuum pumps and placing them in her lap. Her job was to cement on the Ebonite cap and solder on the four leads from within the valve, thus completing the manufacturing process. Radions new valves were of a distinctive pink colour and Mrs Burke remembers the iridescent sheen of the glass bulbs in the mill light. (This would have been the deposit of phosphorous used as a “getter” to assist increase the vacuum beyond the limits of the pumps). Then tested, boxed and loaded into Radions motor van, they were driven off to Macclesfield railway station by the driver, Mr Gregory. The photograph on the previous page was taken at High Mill.

Happy it may have been for the employees, but there were substantial management stresses and sufficient to cause Mr Pattison with his close management colleague to leave Radions who continued their own way and return to Lowerhouse Mill to form Lustrolux in about 1925. This is detailed later in this story.

Radions continued at High Mill and it is believed the firm collapsed in about 1930 almost certainly for the same reasons that nearly destroyed the Lustrolux company.



The photographs were taken in the 1920s (left) and from much the same viewpoint in 1981. Note the change in roofing. In the photograph on the left, it is just possible in the original photograph to make out the word Radions on a panel jutting out from the top left hand gable of the building.

In 1924, Radions made at least 5 types of valves and in 1925 at least 6 were made (including the new “dull emitters”) and the inevitable Radion GP old-style bright emitter. By 1927, Radions were making 16 valve types in nominal 2V, 4V and 6V filament ranges, but it is unknown how many of these were of the even newer coated filament type.

Distribution of valves was promoted by extensive advertising. Most 1924 and 1925 issues of “Modern Wireless” carried their advertisements. Valve repair trading was carried on by post

directly with the users and new valves were sold through untied dealers, their product identity being cheapness.

The fairly rapid expansion of Radions business resulted in new business partners, almost certainly financial, and stresses between them and the technical management developed in or before 1925. Mr Pattison was persuaded by Mr O. Porritt, a former director of Sceando, to form his own company, and this took place in 1925. He took with him a key management team and rented space in Lowerhouse Mills in the buildings formerly occupied by Sceando. The new company, Lustrolux Ltd. was set up to repair and to make valves, but they also manufactured household lamps. (Mr R. Sinclair had left by this time and joined a Birmingham valve manufacturer before joining Lockheed Hydraulic Brakes at Leamington Spa).

Lustrolux, whether by chance or remarkable foresight, decided to equip from the start to make both radio valves and household lamps and which later proved to be their saving. Under the management of Mr Pattison they provided an amazing range of valves and claim to have manufactured some for the nationally famous Cossor company. If this is true, and it is possible knowing the involvement with Mr Sinclair formerly with Cossor, the information was not known to the technical press. At their peak Mr Pattison said Lustrolux employed about 160 employees and produced about 1 million valves per annum.

Alongside is a Lustrolux advertisement placed in 'Wireless Weekly' in May 1923 that promotes repairing rather than new manufacture.

THE BURNT OFFERING!

Maybe the valve just "died of old age"—burnt away in hours of pleasure-giving service. Perhaps it fell foul of the H.T. Battery and went in a flash.

Whether burnt out or smashed up—send us your old valve and for a ridiculously small sum we will guarantee to return it **as good as new!**

No matter what the make of valve or the nature of the damage we can restore it to useful life, perfect in tone-reproducing qualities.

—and just note Lustrolux Repair Prices: Bright Emitters, 4/6; Double-grid and Dull Emitter Valves, 7/-; Power Valves repaired at half the original cost of the valve—maximum charge 8/6.

SPECIAL VALVES—SPECIAL PRICES.

Send for Catalogue "D.R." of

LUSTROLUX

All British Valves to
LUSTROLUX LTD.
West Bollington * * Nr. Macclesfield.



Mrs Burke said looking back to April 1930 Lustrolux "must have closed because orders had been dwindling for some time". Her recollection is broadly correct, but Lustrolux did continue for a number of years, perhaps with reduced range and output of valves.

WIRELESS WORLD

DECEMBER 19TH, 1928.

LUSTROLUX

HUGE SUCCESS SCREENED GRID VALVES

INCREASING DEMAND—TAKE ADVANTAGE NOW

If your dealer does not stock "Lustrolux" send direct and enclose his name and address.

"A" Type

2 & 4 volts	H.F. L.F. R.C. POWER	5/- Each
-------------	----------------------	----------

"Super" Type, Ptless.

2 & 4 volts	H.F. L.F. R.C. POWER	6/- Each
6 volts	POWER	7/6 Each

ALL BRITISH MADE
Every Valve GUARANTEED

FOR ANY CIRCUIT including SCREENED GRID and all "WIRELESS WORLD" SETS

LUSTROLUX Ltd. Lower House Mills, West Bollington, Nr. Macclesfield



The dreadful recession in 1929 was also accompanied by a technology threat to both Radions and Lustrolux. The coming of the electric lighting mains gave rise to a demand for 'all-electric' wireless sets which used a type of valve that could not economically be repaired and the new manufacture of these would have been beyond the capabilities of small firms. Additionally, the falling market price of the older style 'battery' valves meant it became increasingly difficult for Radions and Lustrolux to compete with the giant firms who could afford the massive investment in semi-automatic valve making machines. Much as the sad trend of today, cheaper goods on the market could only come by reducing the manufacturing labour content.

Lustrolux continued making radio valves until about 1934, it is thought, but by that time their principal products were household electric lamps. They could not retain all their staff and one of them, a Mr Burke, started in 1931 his 'F. Burkes Radio and Battery Service' in West Bollington. Older residents may remember he sold his own battery and accumulator sets, assembled from such kits such as the Cossor 'Melody Maker', to those Bollington residents not then connected to the public electricity supply. By 1936 his assembly business gave way to the availability of mass produced 'all-electric' radio sets.

The 1928 advertisement clearly shows their address and promotes an unusual package for a screened grid valve, but the writer has some doubts if this was not just a four electrode valve, not a true screened grid valve.

In switching increasingly to producing household electric lamps Lustrolux managed to continue, but by 1938 had relinquished much of their former vast area in Lowerhouse Mills. It is believed Lustrolux continued in business until the early war years when material and labour shortages together with falling demand ran the business low.

Curiously, the technology has survived by chance. A son of the founder Mr W.J. Pattison had ideas for making automobile lamps and in 1938 a new company Associated Lighting was born at Lowerhouse. It was closed 'for the duration' when Mr Pattison was called up for military service, but the Ministry upon hearing of the business re-directed Mr Pattison to re-open the plant and make small 2.5 Volt lamps under government contract. With 30 employees of all ages they made 30,000 bulbs a week during their wartime peak. Constant battles were said to have been fought on the home front to ensure supplies and argue the case for more labour.

Mr M. Harrison in writing to me said "when we (Slater Harrison) bought the building (Lowerhouse Mills) in about 1937, Associated Lighting, or Lustrolux as it then was, became one of our tenants".

Immediately after the war, Mr Pattison and his brother-in-law Mr Sinclair, recently rejoining him, re-opened the automobile bulb making business and have built it up to become the major supplier for automobile lamp bulbs for the public transport authorities. Today's output is around 5 million bulbs p.a. and they supply some 80% of the U.K. market demand from transport authorities. Their trade name 'Alite' may be well enough known to British motorists.

Recently, Associated Lighting has been acquired by an independent firm Ring Lamps and production continues at Lowerhouse Mills in the premises where it all began with the same family in 1918.

Looking back, the enterprises were audacious and successful. Radions claim made in the 1920s of being 'the largest valve repairing firm in the world' may well have been true and it was probably the best.

Alack, little remains for posterity, but a few photographs have survived and the author owns a few samples of the valves made in Bollington. Leaflets and catalogues have long vanished.

Acknowledgments for source material are due to: Mr W.J. 'Bill' Pattison of Chelford, just retired as Managing Director of Associated Lighting at Lowerhouse and who with his father pioneered the work referred to above. He gave me several interviews and the bulk of the story behind the enterprises; Mrs Enid Burke of Bollington Cross who wrote up her account of employment at both radio valve companies – her husband the late Mr Burke also worked at both companies on “mechanical and power work”; Mr J. Hancock, Managing Director of Shrigley Dyers at High Mill, who outlined for me the history of the former occupants of his premises; Mr M.D. Harrison, Managing Director of Slater Harrison at Lowerhouse Mills in West Bollington who provided me with the key contact names I needed right at the start of my researches in mid-1981.

Mr J. Hancock gave me some history of the two mills. It appears that High Mill was first built in the mid 18th c. as a cotton mill. He did not say when Lowerhouse Mill was built, but said that in 1852 both High Mill and Lowerhouse Mill were for sale.

He said that before Radions had installed themselves at High Mill it had been occupied by Neaves the hat makers and before that cotton had been spun there and some say that coal was dug out of the hillside behind the mill to fire the mill's boilers.

One curious legacy of Radions found by Mr Hancock was the considerable quantity of loose liquid mercury in the ground flooring of the mill when it was replaced in the 1950s. Indeed Mrs Burke recalls the spillage in 1925 and the amusement afforded by new employees who were invited to do the near impossible of trying to pick it up from where it lay in openings in the wooden floor. However her recollection is that the loose mercury was 1 to 2 floors up, so it's possible there was widespread contamination by Mercury. One wonders to what extent that Bollington workers at the mill may have been exposed to some poisoning by the metal. Today's safety precautions would forbid the handling of mercury because of its toxicity.

After Radions, High Mill was part occupied by a timber merchant, possibly at the time of the great 1931 fire in which half of the building was said to have been destroyed. The Radions part survived the fire and was later occupied by Parrotts brewery, but by 1936 Shrigley Dyers moved in where they remain today. The mill is now much changed with the internal floors removed and the original stone slab roof was in such bad condition it had to be replaced shortly after WWII.

My story is far from complete. I need further collaborative evidence about what people have told me as well as new information. I will gratefully receive further facts or anecdotal accounts on Bollington's contribution to the British early wireless industry. For those with engineering interest in the radio valves themselves, I can supply this data to interested parties. I can also supply more information on the repairing processes to those who may be interested.

© Ian Macwhirter, 1981

Ian Macwhirter can be contacted through the webmaster