British Thornton – A Slide Rule Manufacturer of Manchester England

John V. Knott

The history of British Thornton covers 114 years and dates 1878 to 1992. Alexander George Thornton traded as A.G. Thornton from 1878 to 1967. It became a limited company in 1940, and finally British Thornton in 1967.

Alexander George Thornton began his career in the drawing office as an apprentice to W.H. Harling of London who eventually became the Harling in Blundell and Harling of Weymouth.

Harling had himself been an apprentice to W.F. Stanley who was one of the main Victorian instrument makers.

Between 1874 and 1878 A.G. Thornton worked for a George Gallic & Sons Stationers of Glasgow with outlets in various cities in England. Thornton became interested in photo copying of documents and was one of the early pioneers of the Blue Print copying system.

In 1878 he set up business in Manchester at 39 Great Cheetham Street in partnership with Joseph Halden as wholesalers and importers of drawing materials, and a deed of partnership between Thornton and Halden is dated 10th December 1877. However this partnership did not last, and by the end of the second year George Thornton had left Halden and moved to premises at 109 Deansgate Manchester. By 1890 these premises were enlarged into a single fronted shop, showrooms, warehouse and workshop, later he acquired a separate workshop in John Dalton Street that eventually moved to South King Street in 1895.

By this time the firm was well known and appointed contractors to H.M. Government Departments. Thornton's had built up a large home trade and an extensive export business with all parts of the world.

Thornton specialised in making and supplying good quality drawing and surveying equipment as well as material to engineers, shipbuilders, local authorities' railway companies and schools.

The 1895 catalogue only shows Faber's, Routledge's, Hawthorn's and Carrett's slide rules.

By 1897 he had introduced many improvements to instruments and drawing boards, and marketed a students' case of drawing instruments claimed to be the cheapest and of high quality. During this year the firm moved to 4 St. Marys Street with works on Bridge Street Manchester.

It was after the turn of the century Thornton started to manufacture slide rules.

In 1904 the works moved to Paragon Works in King Street Manchester, where he had showrooms, main offices and warehouse. Manufacture of surveying, drawing and scientific instruments took place at Minerva Works in Sydney Street Salford an adjoining town to Manchester, which he purchased in 1907.

In these early years of the 20th. Century, the firm continued to develop new drawing instruments drawing boards, a clinograph, curves and slide rules.

Thornton also sold the *CALULEX* made by Haldens and advertised in those days as the cheapest and most serviceable model available.

During the 1920's the business expanded rapidly due to the demands from overseas market, so larger works were acquired at 41 King Street West, and in 1925 the works split into two premises, one in Rusholme Manchester and one in North George Street Salford.

Thornton patented several of their designs of drawing instruments, and took out six patents on slide rules, the first was in 1933 and the last in 1962.

Pat. Number	**Description**
413112/ 1933	Magnifier fitted to cursor
468257/ 1936	Scales of angles and Inverse Trig. Functions
75493X/ 1953	Resilient insert fitted into stock to reduce distortion
X78056/ 1957	Scales for Quadratic equations - Reciprocal scales
878057/ 1957	As 878056 but with Cubic equations
944634/ 1962	Manufacture of injection moulded stock, held by moulded ends

Thornton won many medals at exhibitions in 1908, the British exhibition in London and the International exhibition in Dunedin in New Zealand.

The leading Universities, Colleges and Government Depts around the world were supplied by Thornton's.

During the second World war (1939-45) the King Street West premises were destroyed and the various departments dispersed to Garside street, Brazenose Street and showrooms to Bridge Street, all in Manchester. The company finally moved to purpose built premises in 1949 in Longley Park Industrial Estate in Wythenshawe on the outskirts of Manchester where all departments except slide rules was under one roof. Slide rules were made at the Derby Street works in Openshaw Manchester and the Bridge Street showrooms retained. By this time the Company had some 220 employees and the Managing Director was Mr. A.M. Thornton, a grandson of the founder.

For the next 20 years the Company seems to have prospered, they had introduced travelling salesmen and there appears to be no information as to whether they

had outlets in other cities, which seems unlikely as their 1895 catalogue states "My only address."

By the 1960's a J.T. Reynolds became Managing Director and he was very interested in product design, so working with consultants and company staff they analysed the uses to which each item would be put and introduced new materials. Shortly after this exercise the Company's range of slide rules (all plastic) won a design centre award in 1965. The Government and the Design Centre, regularly selected Thornton's products for Industrial Design Exhibitions.

The name of the Company changed in 1968 to British Thornton, where the manufacture of drawing office furniture accounted for most of the work of the Company. Slide rules were being made and investment into the teacmng of slide rules was developed in the early 1970's. In 1975 the Company began selling electronic calculators in response to increasing popularity, however after a year the competition from other companies became so intense that Thornton's decided they could not compete. It is about this period the manufacture of slide rules ceased completely.

By 1979 as there was no obvious family continuation for the management of the company, the controlling interest was bought by a local businessman and 20% of the shares were owned by the Manchester Council Pension Fund.

By the 1990's British Thornton were supplying furniture etc, for craft design and technology courses to schools and colleges, but the end was in sight. They ffied supplying computer software and electronic hardware but with only 50% of the factory space in use by 38 employees, the directors decided to set up a holding company by acquiring two other compames to attempt to expand the production base. One of these companies was Education & Science Furniture (ESF) of Burley Yorkshire.

The name British Thornton finally disappeared in 1992 when the company became Education Science Furniture of Burley Yorkshire. The building in Wythenshawe was sold and some of the senior staff accepted jobs in Burley.

The British Thornton Slide Rule

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Thornton's seem to have developed their logo used on slide rules at an early date 1900's when the use of logos was popular in advertising and the construction of Thornton's slide rule was mahogany stock and slide with celluloid scales stuck and pinned in position. The first logo, in the shape of a pick (see Figure 1) was in use before 1935, the second logo (see Figure 2), and the final logo was the letters P.I.C.

P.I.C. stands for Precision Instrument Company that was a good description of Thornton's, but no information is available on who or when this logo was first developed.

In 1990 I was fortunate to visit the company in Wythenshawe, where I met the Managing Director who had no experience in the manufacture of slide rules, so I spent my time there with the Works Manager. He was the only employee with knowledge of slide rule manufacture of the later period around 1969. He started at Thornton's as a master engraver and made master dies for the hot pressing process of marking the scales.

An engraving machine with a single calibrated screw was used to mark out the main master from charts indicating the distance of each mark of the scale from a datum point. The masters took 7 days to make, and would be used to make thousands of slide rules. This engraved master took the form of a highly polished block of nickel, housed in a mahogany box and kept under lock and key.

The production master, a hot pressing die, would be marked out from the main master and is made of brass with .003 inch brass strip fitted into a .003 inch slot for every mark of a scale on the slide rule. When completed this die would be mounted on to a hot water jacket which was equipted with many thermostats to control the temperature of the water in the jacket, thus ensuring that the brass die was held at the right temperature, so as to just sink into the surface of the plastic stock or slide, and so form the scale. The marking would then be filled in with black and finally polished by hand to remove any surplus black filling.

The letters and numbers were hot pressed from a nickel-copper die produced by the electrolysis process.

Slide rules in the early days of manufacture in the 1900's were machine engraved but no information was available as to the type of machine used.

Thornton's had no documentation or old stock of slide rules as this was destroyed in the 1970's.

In the 1970's some slide rules were being made and Thornton's decided to invest in a teaching project in cooperation with I.C.E.M.-Industrial & Commercial Education, Macmillan Ltd, a company funded by industry to improve the education of employees in industry and commerce.

The programe was planned to be a series of similar teaching packages for a slide projector, starting with "How to multiply and divide" using a slide rule, and if successful to continue to cover the total use of the slide rule.

Each package was to consist of a hard backed wallet with transparent sleeves to hold 47 coloured slides on one side, a small booklet for the teachers use and a sound recorded commentary on a 31/2 inch spool in a box stuck to the lid of the wallet. I believe the narrator was Brian Redhead who was a well known BBC commentator in those days.