

**A. KERSHAW & SON, LEEDS (England)**

## **A. Kershaw & Sons, The Early Years.**

© By Peter Kelley

Towards the end of the First World War in 1918, Abraham Kershaw and his wife Martha made the journey to Buckingham Palace, to receive the O.B.E. presented by the King, for his contribution to the production of equipment for the armed forces.

Starting from a tiny workshop in Leeds, he had built up his enterprise to become one of the most advanced engineering companies of his day, a pioneer in the development and production of a wide variety of scientific instruments and optical equipment.

Abraham Kershaw was born on the 4<sup>th</sup> September 1861, the eldest son of Isaac and Sarah Jane Kershaw. For all his life Abraham was to be known by his close family as 'Abram' to distinguish him from his grandfather, Abraham senior. Isaac and Sarah were living at the time with Sarah's mother and stepfather, Mark and Hannah Sutcliffe, a greengrocer on Main Street, Thornton, near Bradford.

Isaac was employed as a reed maker along with his two brothers, five sisters and a small number other workers, in the family business, run by his father Abraham Kershaw senior, at Northowram, near Halifax, making healds and reeds for textile looms.

By the time of the 1881 census a large degree of mechanisation had taken place in the textile trade and hand looms had largely been displaced by power looms. Abraham was able to adapt his business to cope with this new technology and prospered during this time of change. Now, at the age of 71, he employed his youngest son John, two of his grandchildren and another 18 men in his reed making business, he also owned a 32 acre farm at Queensbury. This lesson in business management and adaptability, taking advantage of technical change, was not lost on young Abraham and was used to great effect when he set up his own business.

We know little about young Abraham's childhood or his education but family traditions tell us of his determination not to follow the family's long involvement in one branch or another of the textile trade. This tradition went back at least four or five generations in woollen working districts of the West Riding.

Abraham's two younger brothers, Frank born 1866, Arthur born 1868 and Elizabeth his sister born 1871, all became worsted spinners, but Abraham was apprenticed as a 'Philosophical Instrument Maker' with Messrs Edwin Blakey, & Co., off Square Road, Halifax, electrical instrument makers.

### **Early training in Electrical Engineering**

By the time that Abraham had completed his apprenticeship in 1882 the firm had become Blakey, Emmot & Co Ltd., Electrical Engineers. This company was one of the pioneers of electric power generating plant, lighting systems and control equipment. One of their better known installations was a system for lighting Halifax Town football ground, using arc lamps from a battery of bichromatic cells. After the end of his formal training Abraham's time with the firm was short. In his own words he was passed over for promotion to foreman because he was "too good a workman", so he left, securing a position with Mr Louis John Crossley, to take charge of his private electrical laboratory, on his estate at Moorside in Halifax.

Louis John Crossley was an exceptional man, the son of Mr John Crossley one of the two brothers who ran Dean Clough Mills in Halifax. Due to his persistent ill health he was educated by a private tutor and soon demonstrated an aptitude for science and engineering. He joined the family business at Dean Clough, in 1859 where the construction of engines and boilers became his particular concern.

It was however, in the field of electrical science that Louis John Crossley became well known. He installed electric lighting into Albion & Dean Clough Mills and developed his own 'Crossley-Brequet' telephone system, which he later replaced with a Graham Bell's system. The patent for the Crossley Transmitter, used to amplify and clarify sound on long distance telephone wires, was sold to the United Telephone Company for £20,000.

Many other diverse developments took place on the estate, such as an Electric Tramcar system, Electric Lighthouse Lanterns, Boiler

Water Gauges and a range of scientific instruments. All were designed and tested in his workshop.

Abraham Kershaw's position gave him access to workshop facilities, scientific instruments, technical books and papers which enabled him to gain valuable knowledge and practical skill in a vast range of mechanical and electrical fields.

He also gained another valuable asset from his position. In May 1883 he married Martha Beilby, the daughter of Reuben Beilby, the head gardener of the Crossley estate. On his marriage certificate he gives his profession as: 'Telegraph Engineer'. He gave the same occupation on the birth certificate, in February 1884, of their eldest son, Cecil. There were to be two other children; Dorothy born 1889 and Norman born in 1899.

### **The move to Leeds**

Due to Mr Louis Crossley's declining health, the laboratory and workshop on the estate closed in 1888. Abraham and his family moved to Leeds where he started his own business as 'Scientific instrument maker and repairer'.

At first, Abraham approached his mother's brother Walter Bielby, to put some money into the venture. Norman, Abraham's youngest son quotes Walter as saying, "Nay it's no use us both losing our brass, if you survive the first twelve months I'll put some money in"-to which Abraham replied, "If I survive twelve months I will have no use for your money".

On moving to Leeds, the family lived at 12 Renfield Road, Sheepscar and his first workshop was at 8 Park Place. The business prospered, making and repairing small instruments and electrical apparatus for the university, medical school, hospital and 'the wider electrical trade'. In 1892 he moved the workshop to Cankerwell Lane, where he employed about 12 workers and by 1898 he moved again to larger premises on Dorrington Street, with about 30 employees.

That same year his eldest son Cecil Kershaw, then a lad of 14 started work with his father. The workshop was still undertaking

instrument fittings and repairs including some high-class electrical instrument work, but was now also manufacturing and selling his own products such as, Thomson Mirror Galvanometers' and 'Wheatstone Bridges'.

### **The First Government Contracts**

During the Boer War the factory were given government contracts for Telegraphic communication instruments and Heliographic signalling equipment, made especially portable and robust for the army. This association with the armed forces and their need for special equipment continued throughout the life of the company.

The firm also manufactured a wide range medical and physiological apparatus for hospitals and medical schools both in Britain and abroad, for example, in the Leeds General Infirmary they made and installed part of the 'Niels Finsen High Intensity Light Equipment' used in the treatment of certain skin disorders.

For the photographic trade, Kershaws initially produced a range of camera brass work and fittings for other manufacturers, but by 1900 they had developed their own studio and field cameras, lanternslide projectors, arc lamps and tripods etc.

### **The Soho Reflex Camera**

In 1904 Abraham took out two patents, one for measuring the speed of photographic shutters and a second for improvements to cameras, including a folding mirror mechanism. The single lens reflex camera was born. From 1905 onwards the 'Soho Reflex' became a standard field and studio camera for the professional photographer. Most 'Soho Reflex' cameras were marketed through Marion and Co. Soho Square, London. The mechanism was also manufactured for other companies such as the 'Ross' standard reflex, the 'Beck' focal plane reflex, the 'Dallmeyer' telephoto version, the 'Naturalist' and the London Stereoscopic Co. artist reflex.

Over a dozen different models of reflex cameras were produced at the factory, and a special leather department, to cover

the cameras, was set up and continued in production until 1952. With the rapid expansion of the specialist camera trade, added to their other products, the business grew rapidly. In 1905 the factory moved to more spacious premises in St. Columbia Street and in 1910 a new large extension was added where the firm now employed over 200 workpeople.

In August 1910 the British Journal of Photography announced the formation of a new company:

*'A. Kershaw & Son Ltd.*

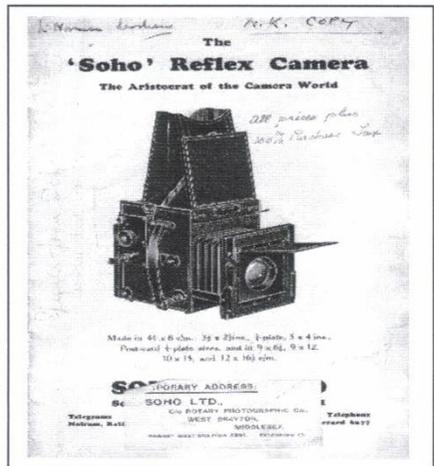
*Capital £15,000 in £1 shares. To take over the business of scientific instrument makers and manufactures, carried on at St. Columbia Street, Woodhouse Lane, Leeds, known as A. Kershaw.*

*The subscribers are: A. & C. Kershaw, 62 Francis Street, Leeds. Registered Office, 1 St. Columbia Street, Leeds.'*

The directors were A. Kershaw and C. Kershaw. Abraham, named as governing director, was to receive £300 per annum and Cecil, who had demonstrated a definite flair for precision engineering, received £200.



**Amateur Photographer.  
May 1925.**



**'Soho' Reflex Camera.  
Circa 1940**

## The 'Soho' on the polar ice

In 1910-13, the renowned naturalist and photographer Mr Herbert G. Ponting joined the British Antarctic Expedition, led by Captain R.F. Scott, as the photographic officer. Eight years later he was to publish an account of the expedition in his book 'The Great White South'.

In 1925 the May edition of 'The Amateur Photographer' magazine, carried an advertisement for the Soho Reflex which included a tribute to the camera by H. G. Ponting:-

*"London, W., 16/3/25*

*Messrs. A.P.M. Ltd., Soho Sq., London, W.1.*

*Dear Sirs, I think that you may like to know that the two Soho Reflex Cameras which Messes, Kershaw & Co. made to my order and specification fifteen years ago rendered invaluable service during the Scott South Pole Expedition, and I do not know what I should have done without them.*

*It may further interest you to know that I have since used these same cameras in the Arctic, during my travels in Spitsbergen. They are probably the only cameras in the world which have been used within a few hundred miles of both the North and South Poles.....*

*These cameras are today in just as serviceable condition as when they were first made, notwithstanding the vast amount of work they have done and the exceedingly trying conditions of climate to which they have been subjected..... If my own experience counts for anything, I can assure those who may be in doubt that they will make no mistake if they decide to buy a 'Soho'.*

*With congratulations and best wishes,*

*I am,*

*Gratefully yours,*

*G. Ponting,*

Photographic Officer to the British Antarctic Expedition.

1910-13.

## **'Kalee' Cinema Projectors**

On the 5th April 1907 the proprietors of the Leeds Grand Theatre announced that their lessee,:

*"Sydney Hammond Carter, MD of New Century Pictures Ltd., opened his "New Century Talking and Singing Pictures, at the Assembly Rooms, 32 New Briggate, Leeds, by the aid of Gaumont's Chronophone, including the latest subjects exhibited by Royal Command: At Buckingham Palace last week before Her Majesty the Queen, the Dowager Empress of Russia, the Prince and Princesses of Wales and their children. Magnificent reproduction of the famous little comedian Little Tich*

*New humorous and sensational pictures.*

*Two representations daily. At 3 & 8 p.m".*

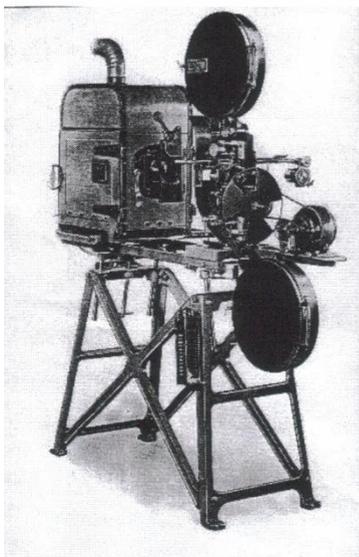
Both Cecil and Norman Kershaw later wrote brief notes describing how the company first embarked on the manufacture of cinema projectors. They relate that in 1910 Mr Reginald Story and Mr. Fred Steel, film salesmen for New Century Pictures, were looking for a local source of reliable projector mechanisms to replace the French Gaumont Chronophone, a popular machine in use at the time. They approached Kershaws directly and Abraham could see the future possibilities for the company in this new line of production.

Cecil and his father studied various projectors obtained for them by Mr Steel. Cecil, who was then 26 years old with a definite flair for precision engineering, was given the task of designing a similar mechanism to the Chronophone. The prototype was given the name 'Kalee' No. 1. The distributors, 'New Century', did not want the A. Kershaw' name to be used on the machine but had no objection to the use of the name 'Kalee', which was formed by the letters A, K, reversed with Lee, short for Leeds, added. Hence, this famous trademark was born. Later the 'New Century Film Service Co.' was launched, a subsidiary formed to sell and hire out films and equipment for 'New Century Pictures Ltd.'

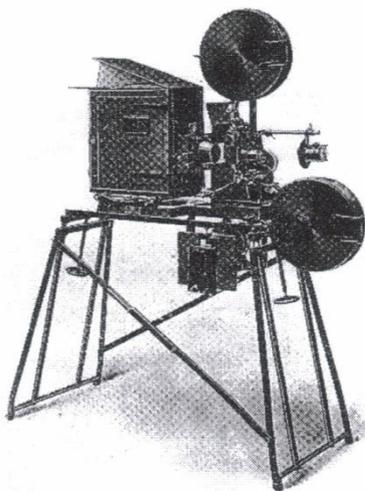
In 1911 the first Kalee No.1 projector was installed in the Assembly Rooms, Leeds. The second was used in a fairground, their robust

and reliable construction made them popular with travelling displays. Kalee projector No.2 was produced in 1912, followed by No, 3, the first full scale production model in 1913. This machine was fitted with single blade shutter fitted inside the mechanism, rotating at two revolutions per picture, similar to the prototype except that it was painted black instead of green.

The firm had considerable difficulty reaching the standard of precision engineering necessary to produce some parts of the mechanism, such as the 'Maltese Cross and Sprocket unit', which had to be manufactured from case hardened steel to an accuracy of one ten-thousandth of an inch. This production problem took many years to perfect, by which time the 'Society of Motion Picture Engineers' had also set a standard code for the perforations in 35mm. film for both cameras and projectors which improved considerably the quality of the picture seen on the cinema screen.



**ALL BRITISH '  
'KALEE INDOMITABLE'**  
Model No. 6, Cinematograph Projector.



**Kalee' No. 3 Cinematograph  
Outfit, complete.**

In 1914 two new models were built. The 'Kalee' No. 4, for New Century Pictures, was similar to No 3 except that it was fitted with a more efficient large diameter front shutter, and the No. 5, which became world famous as the Tyler 'Indomitable'. This very different type of projector, based on the German 'Ernemann' design, was developed for Mr. Will Day of the 'Tyler Apparatus Co.', Gerrard Street. Leeds, it was given the name 'Indomitable' to reflect its exceptional reliability in service.

Before the outbreak of the war in 1914 A. Kershaw & Son was manufacturing two types of cinematograph Projectors and their associated equipment, the 'Kalee No.4', marketed by the New Century Film Service Co. and the 'Indomitable', marketed by the Tyler Apparatus Co.

### **Production during World War 1**

During World War 1, all civilian work was dropped to enable the firm to concentrate on contracts for the 'Ministry of Munitions'. The first major production unit was set up to produce 'Clinometer Sights', at the rate of 500 per week. These were used on machine guns and some units were treated with radium bromide for use in the dark.

At the outbreak of the 1914/18 War there was no firm in the country capable of producing more than a few dozen pairs of 'Prismatic Binoculars' per week. As a temporary measure, Lord Roberts, on behalf of the government, issued a request for the public to donate their binoculars for use by the troops at the front. As the War progressed the Ministry urgently needed 1000 pairs per week, of 6/24 Prismatic Binoculars, fitted with graticules, for directing gunfire.

The Germans dominated the pre-war market with firms like Carl Zeiss of Zena for optical instruments and Scholt & Jenn, for high quality optical glass. No British firm was able to match them for both quality and output.

The Ministry approached A.Kershaw & Son because of their expertise with cinematograph projectors and success in producing clinometers and other specialised equipment for the armed forces

and in 1915 the firm was given the financial backing and government support, to build a new factory, acquire the key personnel and to design or purchase the new machinery necessary for this ambitious venture. A site in Harehills Lane, Leeds, was chosen for the new factory and was purchased on the 1<sup>st</sup> April 1916. Building work proceeded 'round the clock' and 10 months later, in January 1917, the plant was able to begin full-scale production.

The project was helped by the discovery that Carl Zeiss had a depot at Mill Hill, London, for the repair and limited manufacture and assembly of prismatic binoculars. From there they were able to obtain the services of three key men, F.W.Elliott, with a wide knowledge of assembly methods, W.Freeman, with expertise in optics, and S.Roach, a specialist in accurate production machinery.

Before the new factory was opened Kershaws were purchasing lenses made by Taylor, Taylor & Hobson of Leicester and to a limited degree, Ross Ltd., and Prisms from Barr & Stroud. Prof. Barr and Prof. Stroud developed a naval 'long base' optical range finder at Leeds University. Glass mouldings were purchased from Chance Bros., Smethwick.

The target of 1000 pairs of prismatic binoculars per week was never quite achieved; the actual figure was nearer 800.

In 1917 Norman Kershaw, then seventeen years old, joined the firm to work in the optical department after a 'crash course' on lens design at Imperial College, South Kensington. He was later to concentrate on lens design setting up a research and development laboratory employing about 16 highly qualified technical staff.

Cecil Kershaw, who, according to his brother, had a penchant for fast cars and went to great lengths to perfect his latest purchase, was "precision engineering minded" and concentrated on production and the development of the precision engineering side of the business.

### **Return to Peacetime Production**

After World War 1, A. Kershaw & Sons returned to full peacetime production and to improve distribution of its extensive range of

products, formed two additional subsidiary marketing companies:-

#### The Kershaw Optical Co.

The Kershaw Optical Co. joined Marion & Co. in opening sales depots in all major cities of the UK and establishing a worldwide network of sales outlets to market their optical and photographic equipment including a new range of cameras and binoculars. In 1921 this subsidiary company together with the parent company A Kershaw & Sons, joined five other British photographic firms to form Amalgamated Photographic Manufacturers Ltd. (A.P.M. Ltd.)

#### The Kershaw Projector Co.

When peacetime production of Kershaw's cinematograph equipment was resumed, the Tyler Apparatus Co., who had distributed the 'Indomitable' projector before the war, had closed. The 'Indomitable' now re-christened 'Kalee No.5' was marketed, along with the 'Kalee No.4', by the New Century Film Service Co., now part of Imperial Pictures Ltd. In 1920 this group also distributed Kershaw's new improved 'Kalee No.6'.

These two companies subsequently became part of the Metro-Goldwyn Mayer group (M.G.M.) who was not interested in selling equipment. Their remaining stock of 150 Kershaw projectors were released onto the market at a discount price.

Kershaw's response was to set up its own separate subsidiary marketing company, The Kershaw Projector Co., with an advanced model 'Kalee No.7' specifically designed to make all previous models obsolete. This new company began trading in May 1923 from its head office in Albion Walk, Leeds.

### **A New Generation**

Abraham Kershaw received the OBE for his contribution to the war effort by the development and production of essential equipment for the armed forces.

During 1925, after a strenuous working life, Abraham became ill and slowly relinquished control of the firm to his two sons, Cecil and Norman. He died in 1929 at his home in Trinity Road, Scarborough