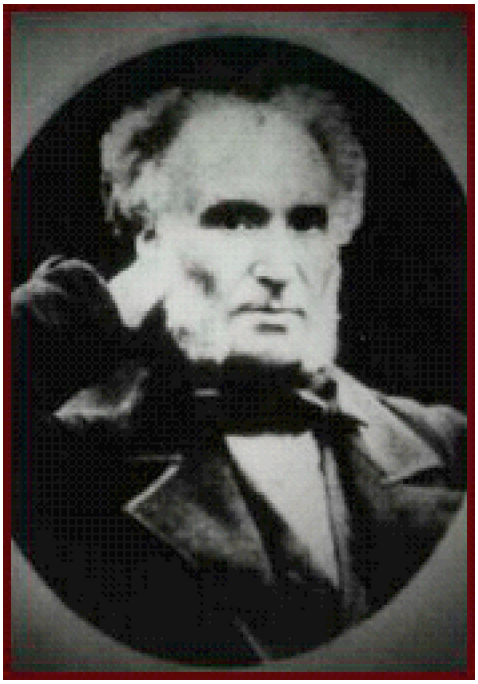
The Davis Derby Story

by Dave Johnson



John Davis, J. Davis, Davis Derby, John Davis & Son, and Davis Instrument Manufacturing Co. are all names that frequently appear on mining artifacts such as safety lamps, miners' dials, and anemometers. What follows is a brief history of this firm best known as Davis Derby.

What would become Davis Derby was a family business established in Leeds, England, in 1779, by Gabriel Davis, a manufacturer of optical, surveying and mathematical instruments. The business was founded during the reign of King George III, when William Pitt, the Younger, was the Prime Minister of England. Capital tax had not been thought of and for the few people who paid income tax, the rate was one shilling per pound sterling.

Left: John Davis.

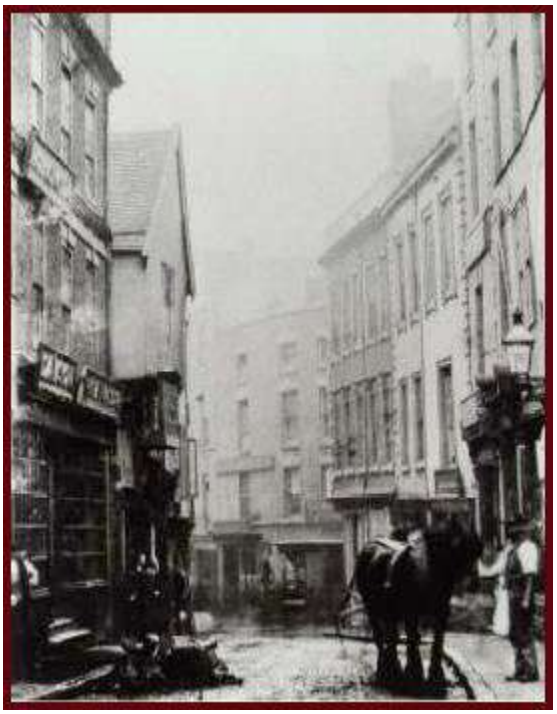
Gabriel Davis' nephew John was born in the village of Thame in Oxfordshire in 1810. He became apprenticed to J. Abrahams, who styled himself as Mathematical Instrument Maker to the Duke of Wellington. On completion of his apprenticeship in his late teens John Davis moved to Leeds to join his uncle's family business.

Prior to 1830, it was common practice for tradesmen to open a shop in a town and then move on to another, covering perhaps ten towns in a circuit. John followed this trend, visiting Liverpool, Cheltenham and making his first visit to Derby in April of 1830, opening a temporary shop in Rotten Row to sell the Company's products where he remained for six weeks. At that time the population of Derby was 23,000 people and there was only one other optician in town, Mr. J. Steer, who was both an optician and toy maker with a shop also in Rotten Row.

In 1800 it would still have been appropriate to describe Derby as, in the words of Daniel Defoe of a century earlier, – a town of gentry rather than trade. Derby had seen some influence of the industrial revolution, the

Derby Silk Mill was founded in 1717 by two brothers, John and Thomas Lombe using technology highjacked in dramatic style from Italy, an early case of industrial espionage. In 1736 John Whitehurst moved to the town and established his business as a high-class clock maker. Jedidiah Strutt founded two mills in the town center not far from the silk mill around 1750. However it was the arrival of the railways in 1839 and 1840 which invigorated the town. Andrew Handyside arrived in Derby from Glasgow in 1848, his factory was to be the largest in Derby for more than 50 years.

In the early 1830's John Davis traveled regularly between Liverpool, Cheltenham and Derby to sell his products. For the next few years John visited Derby at regular intervals, staying for a few months at a time, he advertising his visits in the Derby Mercury. By 1833 it was clear that John had broken away from the Leeds business of Gabriel Davis and was working for himself.



John's brother Edward continued to work for Gabriel Davis in Leeds and was destined to take over from him when he died. John continued to visit Derby for the next decade, typical of his visits were those in 1835 and 1836, arriving in October and leaving to go to Cheltenham in February of the following year.
In 1843 perhaps attracted by the railways and the rapid transition taking place in Derby and the desire to settle down with his wife Amelia and their two young sons, he took up residence with his family. John bought the free-hold of the sixteenth century Meynell town house, which is now the oldest surviving premises in Iron Gate, and which in recent times has been an art gallery and a restaurant. At the rear of the premises he build a workshop to produce his products, the house was to be the family residence for close to 20 years.

Davis' first shop location at 14 Iron Gate Derby, England, 1850.

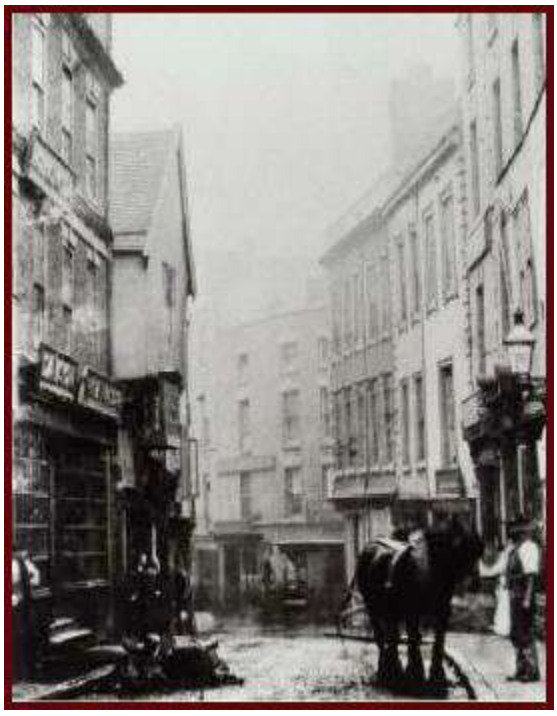
The company was by now manufacturing a variety of surveying instruments such as theodolites, surveying dials and miner's dials, some very similar in design to the products of Gabriel Davis' business in Leeds. Interestingly, spider webs were being used to replace the wires used for sites on these instruments, the task of collecting spider's webs was one of the tasks given to apprentices and continued well into the twentieth century.

Right: Davis All Saints Works Amen Alley Derby - 1860.

At this time coal production in the UK had risen to 55 million tons and 250,000 men, women and children were employed underground and there were an average of 1000 deaths in the mines each year. Around 1840 John Davis began to manufacture mining equipment such as mine safety lamps based on the designs developed by Sir Humphrey Davy in 1815. Production of miners lamps continued for more than a 100 years, reaching 10,000 a year by the turn of the 20th century.

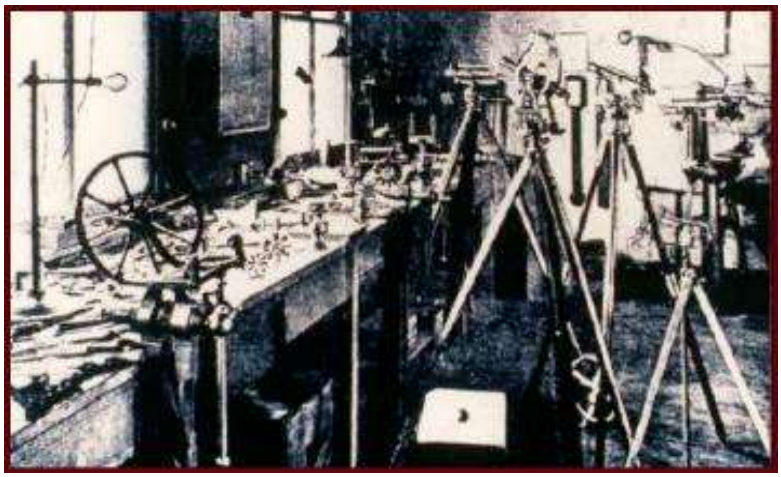
Left: Davis Derby Fireboss unbonneted Clanny. Right: Davis Instrument Mfg. Co. Anemometer.

The company soon attracted interest from a number of mining experts, and in 1844 Davis was visited by Benjamin Biram, house steward to the Earl Fitzwilliam of Wentworth Woodhouse who owned a number of collieries in South Yorkshire. Biram explained that he had invented an instrument to measure the amount of air or force of wind entering a mine, the instrument was called an Anemometer. In an advertisement placed in the Derby Mercury in February of 1845 John announced that manufacture and sale of Benjamin Biram's first vane Anemometer would commence in a few weeks.



Right: Davis' first shop location at 14 Iron Gate, Derby, England, 1850.

Right: Davis Instrument Shop - 1860



John quickly became famous in mining circles as a pioneer in the use of electricity in mines and for his mining products. In 1850 John Hedley, HM Inspector of Mines the Midland District approached John with a new type of Miner's dial with a swinging limb, modified versions this instrument were widely used by mining surveyors and for the next century, the company continued to manufacture the Hedley dial until around 1960. At this time, John was hoping the bulk of his business would come from steam engine manufacturers and as a result he advertised a range of vacuum and pressure gauges.

.Derby Guild Hall was destroyed by fire in 1841 only 13 years after it was built, this event inspired John to write in the Derby Mercury about how buildings could be protected from the effects of lightening by the use of a copper tube of about ?" in diameter coming from the roof and continuing into the moist earth below the foundations. Lightning conductors were by now a feature of the company's catalogue!

Left: J. Davis bonnetted Clanny safety lamp.

John was very active in the community, around 1860 he began to press for the widening of Iron Gate. He was chairman of a committee of Iron Gate tradesmen and personally contributed the sum of £100, a sum exceeded by private individuals only by the Duke of Devonshire who contributed £250 to the fund which eventually provided £2350 to enable the work to be carried out. The widening of Iron Gate commenced in 1865 and took five years to complete.

Right: John Davis & Co. - Baltimore, MD and Derby, England.

John moved from his Iron Gate address to live at 99 Friar Gate probably to escape the dust and noise created by the widening of Iron Gate, He made a further gesture to improving the streets of Derby by contributing the first trees on Friar Gate and London Road.

John Davis & Son Kirby Lamp - All Saints Works.

John became the father of ten children, including seven sons who were educated at the town's grammar school in St Peters Churchyard. Headmaster of the school at the time was the Rev James Bligh, an idle and incompetent kinsman of the infamous Captain Bligh who captained the Bounty..

John Davis died in 1873 at the age of 63, his brother Edward, his elder son Frederick and his second son Alfred were appointed executors to run the business. Frederick and Alfred were both trained as civil engineers and Edward was very much involved in running his own business in Leeds, consequently Henry Davis was soon appointed by his brothers to run the business.

When Henry took over the business the workshop was fitted out with four large lathes and four small lathes, fourteen pairs of vices, a new vice bench and eight sets of working men's tools, suggesting that eight instrument makers were employed.

At this time Henry's business must have included selling equipment to local medical practitioners since stethoscopes, enema bottles, water pillows, air cushions and chest expenders were all recorded in the company's sales ledger, listed under the heading of optical instruments!

Right: John Davis and Son - London and Derby.

Under the leadership of Henry Davis the business continued to expand, moving to new premises in November 1875 at All Saints Works Amen Alley in Derby close to the Cathedral. The earliest surviving Davis Derby catalogue is dated in 1877 and shows

that products included turret clocks, surveying instruments, a wide range of miners lamps, anemometers, electric bells for both mining and domestic use, pressure gauges, opera glasses, spectacles, medical devices and weather vanes. This catalogue also shows that the firm was actively involved in the generation of electricity for lighting.

The record of Queen Victoria's visit to Derby in 1891 states "Messrs John Davis and Son, of All Saints Works, had the opportunity for the first time in Derby of showing how pretty illuminations can be made to look with the use of electric light. They were responsible for the letters 'V R' very prettily outlined in small lamps, over Messrs. Pountain, Girardot and Forman's premises and also for the 500 candle power lamp which brilliantly illuminated Messrs Bakewell and Wilson's premises in the Market Place.

The company soon began to supply local shops and offices with electric power from generators in the Amen Alley Works. This continued for four years until 1893 when Derby Corporation built its new power station on Full Street as close as possible to the Davis lighting station, on the site of what is now the Industrial Museum.

Interestingly, electric lighting underground in mines was in use prior to acts of Parliament in 1882 and 1888 which permitted local authorities to authorize the use of electric street lighting. One of the earliest lighting installations installed by Davis of Derby was in 1886 in the Star Mills Co. flour mill in Newport, by 1893, John Davis & Son (Derby) Ltd had installed electric installations for lighting and other purposes such as pumping, at several mines including the Mill Close lead mine at Darley Dale which was lit by incandescent lamps of 16-250 candlepower.

Other installations were at Clydach Vale Colliery in South Wales and two pits owned by the Clay Cross Company, which were equipped with lighting and pumping installations. The Riddings Colliery of Messrs J Oakes and Co had its surface works and underground roadways lit by Davis Derby. The company also supplied and installed lighting systems at the nearby Swanwick and Bolsover collieries.A complete installation for electric lighting plant at Bestwood Colliery and Ironworks was also installed which was powered by twin steam engines and dynamos.

It is interesting to note that in February 1893 the Federated Institution of Mining Engineers visited Davis Derby and reported the visit as 'An Hour At All Saints Works'. This report describes a pioneer installation for the generation and supply of electrical power for supplying neighboring hotels, shops and offices.

Institution members also reported on an improved Naval signaling system, and in particular noted that an order had been executed for the German Navy. Mr Henry Davis commented that "the firm had received the gratifying intelligence that it is the intention of Prince Henry of Prussia to adopt the same throughout the whole German Navy".

At the time of the visit the company was reportedly capable of manufacturing 500 miners lamps each week, and these were dispatched all round the world. It is worthy of mention that in 1886 the final report of the Royal Commission On Accidents in Mines was presented and under the

heading ‘Safety Lamps’ three out of four of the lamps selected as the safest were made by Davis Derby. These were the Bonnetted Clanny, the Marsaut and the Bonnetted Muesler.

Members also reported that a new type of ringing key and signaling bell were demonstrated. Various instruments were on show during the visit including Davis’s improved Hedley Dial, a self-timing anemometer and a safety lamp cleaning machine invented by a Mr Wolstenholme of the Bestwood Coal and Iron Company.

Davis Derby manufactured many products which had been invented by prominent mining engineers and other inventors of the time, such as Biram’s anemometers, John Hedley’s Miner’s dial and Hoffmans patented tripod head from the USA. The Company also had a close relationship with Mr A. H. Stokes, His Majesty’s Inspector of Mines, and patented a miners lamp shut off device originally invented by Mr. Stokes.

During the visit, members of the Federation were given a demonstration of the patented Davis and Stokes electric safety motor. This motor had an enclosed commutator and brush set which could not be opened when the motor was running and which reduced the space available around the sparking brushes that could be filled with gas. Previous attempts at designing motors for use in fiery mines were based on the principle of completely enclosing the motor, resulting in them being blown apart when an explosion occurred within the motor enclosure.

The Davis family avoided publicity and advertising, sales promotion in this period was achieved mainly by attendance at exhibitions in Cardiff South Africa and in London. In 1890 Davis took on the UK agency for coal cutters manufactured by the Jeffrey Company of Columbus, Ohio.

The firm of Davis Derby was held in high esteem, for in 1902 a committee was set up to report to His Majesty’s Principal Secretary of State for the Home Department on questions related to the use of electricity in coal mines. Notably, Henry Davis was one of 56 witnesses called to give evidence.

Electricity was first introduced into UK coal mines in 1881 by David Graham at Earnock Colliery in Hamilton, Scotland. This installation was for a lighting system of 30 Swan Lamps. In the following year electricity was used for a pumping installation at Trafalgar Colliery in the Forest of Dean; four years later Davis Derby was asked to install its first underground lighting system, in Mill Close Lead Mine in Darley Dale.It was concern about the increasing use of electrical equipment in coal mines that led to the formation of the Institution of Mining Engineers.

Records show that the company was very active in overseas markets with agents in Australia, Canada, China, Japan and South Africa. The company was also selling equipment to sugar refineries in Barbados probably as a result of initial sales through Fletchers of Derby.

In 1900 Henry’s brother Herbert was given a four year contract to sell the company’s products in the USA, subsequently he opened an office in Baltimore which was adopted as a branch office of John Davis and son.

Herbert achieved considerable success in America so much so that in 1912 he resigned and formed his own company Davis Instruments of Baltimore manufacturing many Davis Derby products including anemometers which are still manufactured by that company today.

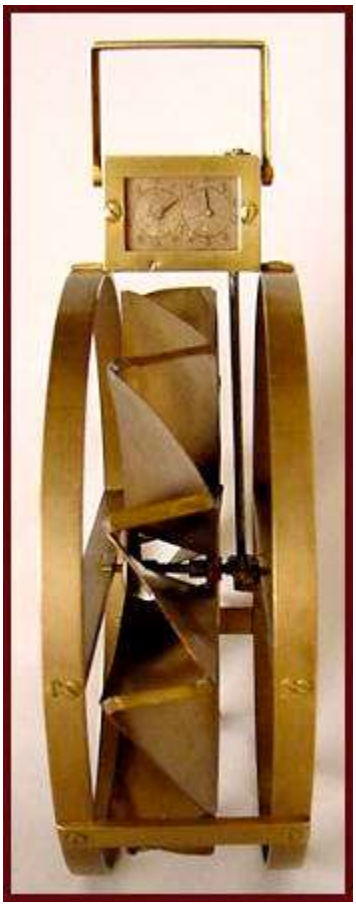
Between 1945 and 1955, Davis Derby phased out the manufacture of miner's, instruments and other long-time products to concentrate on electrical equipment for mines. In 1962 Davis Derby was sold to Standard Industrial Group based in the UK. In 1987 Davis Derby was sold to Senior Engineering Group and in 1992 Davis Derby Limited was acquired by Communication and Control Engineering.

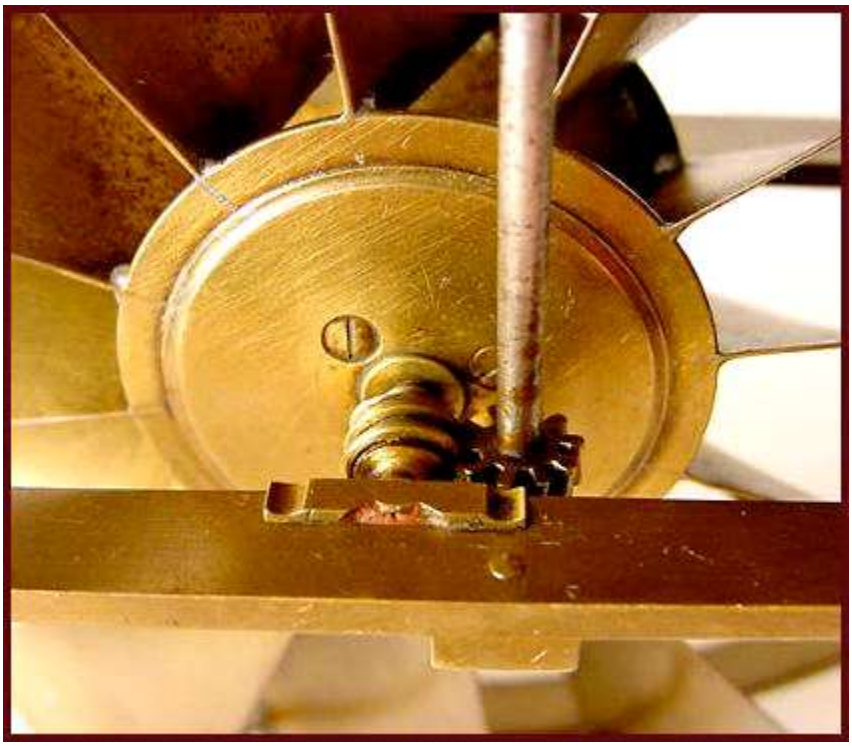
Today Davis Derby Limited is a leader in the design and manufacture of electronic control & monitoring equipment & data logging systems for harsh, hazardous & difficult environments for global markets. They specialize in the design and manufacture of intrinsically safe electronics equipment and vehicle access control & fleet management information systems, having successfully made the transition from the Industrial Age to the Electronic Age.

Shown along with this article are several Davis Derby safety lamps and anemometers. The most interesting of these is a very early Davis Derby prototype anemometer that I recently purchased from a dealer in the UK. This all brass anemometer is 6.3" (16cm) in diameter. Hand engraved are: BIRAM'S PATENT ANEMOMETER DAVIS OPTICIANS DERBY 35. There are two hand engraved dials, under the left dial appears CS and under the right dial appears XS, both dials share the numbers 7 and 8. This design is much more fragile than later models, there being little protection from damage for the vanes. This design is unusual in that it does not have the dials in the center of the vanes as we see in all the later versions of the Biram-style anemometer. This a truly a rare mining artifact.

Davis Biram anemometer and closeup of dials, ca. 1845.

Davis Biram anemometer etchings, ca. 1845.





Davis Biram anemometer, side view and gear drive, ca. 1845.

According to David Hind with Davis Derby "I think that the number 35 probably is the serial number. I think that your Anemometer is an early version, it is more like our prototype than the production versions produced just a few years later". Davis Derby has a similar early prototype anemometer with the number 28 in their collection. John Davis first started to produce the Biram anemometer in Derby, in 1845, the year after it was invented by Benjamin Biram. David Hind reports that: "We receive an average of one enquiry a month from the general public requesting information on nineteenth century and early twentieth century Davis Derby instruments which they have acquired. Many of these early instruments manufactured by John Davis and Son having outlived their original purpose are now highly collectable items a tribute indeed to the ingenuity of those who invented them and the craftsmanship that went into their manufacture."