The name that came from a medieval quarry

Steetley takes its name from the hamlet of Steetley near Worksop, Nottinghamshire, where there had long been a small wayside dolomite quarry producing building stone.

The origins of the quarry are lost in medieval history Stone from it was almost certainly used in the chapel built during the reign of Henry 11 in the 12th century that still stands at Steetley. The quarry supplied some of the stone from the Worksop area that went into the Houses of Parliament at Westminster. More was used in many of the ducal houses of Nottinghamshire, Derbyshire and Yorkshire.

Modern Steetley grew out of changes that occurred in steelmaking methods during the industrial revolution. During the 1850s and 1860s two significant advances were made in steelmaking processes that were to create a demand for new furnace lining materials and, as a result, ensure the future of Steetley quarry as a source of dolomite for industry. The first advance was the invention of the air blown steel converter by Bessemer in 1855. This was followed in 1862 by the regenerative steelmaking system invented by Siemens, now better known as the open hearth process.

Both these methods used traditional refractory clay or silica furnace linings and required iron relatively free of phosphorus and sulphur. This ruled out most British iron ores. In the late 1870s, two South-Wales chemists -cousins Percy Carlyle Gilchrist and Sidney Gilchrist Thomas invented a method of eliminating phosphorus and sulphur in the steelmaking furnace, thus making it possible to use the plentiful but inferior local ores. The key to their success was the discovery that dolomite could be converted into a hard-burnt lime that made an ideal furnace lining capable of withstanding the chemical process involved. Dense, black and almost metal-like, this 'basic material' later became known as Doloma.

With the steelmaking industry of Sheffield not far away, the scene was set for the formation of the Steetley Company. The deposits at Steetley quarry were at that time being worked for building purposes. Following the purchase of the quarry by Mr Isaac Sharples it was announced that from January 1, 1885, the quarry would trade as the Steetley Lime and Building Stone Company and supply hardburnt lime. Meantime, a Mr John Rowley Horton, an undergraduate at Oxford whose family had been interested in industrial iron processes and who himself had a considerable knowledge of chemistry, recognised that furnace linings would become of supreme importance for the new basic steel process. Horton left university and with a colleague entered into partnership with Sharples to supply lining materials from the Steetley Lime and Building Stone Company.

The original methods of producing Doloma were crude. A pile of stone was mixed with fuel and burnt at the highest possible temperature in clamps, then allowed to cool before being broken up and sorted by hand. This was both inefficient and ineffective as a means of supplying the growing needs of the steel industry with Doloma of the required quality.

Three years after the Steetley Company was established, it succeeded in building a continuous shaft kiln, or cupola, to produce Doloma. The furnace itself was a vertical shaft lined with tarred burnt dolomite. Stone and coke were put in at the top of this air blown furnace and Doloma emerged at the bottom -a marked improvement on the earlier batch process.

Doloma disintegrates into a powder on exposure to air, and production had to be planned so it was available for immediate despatch for use in lining or repairing furnaces. This was a requirement that was eventually to lead to a closer relationship between the company and its steelmaking customers.

Demand for Doloma expanded rapidly and, in 1904, with other sources of supply now needed, Steetley acquired the Coxhoe quarries in Durham. The first cupola there started production in 1906.

By the outbreak of the First World War, the combined production of Doloma at Steetley and Coxhoe had reached 50,000 tonnes a year. This had doubled by the time of the armistice in 1918.

The wartime links established between Steetley and the steel industry were further strengthened after the war when the steel companies invested in Steetley. Recognising that the steel industry would need regular and reliable supplies of the perishable Doloma, Steetley set out to acquire high quality dolomite deposits strategically placed near the steelmaking centres of the Midlands, the North, and South Wales.

By 1923 the output of the company had reached 150,000 tonnes a year and Steetley became a public company. Growth and acquisition continued and by 1930 there were four companies then making up Steetley - The Steetley Lime Company Limited, the Yorkshire Basic Company Limited, the Taffs Well Dolomite Company Limited and the Whitehaven Basic Company Limited. These were merged in 1930 to form a new company, The Steetley Lime and Basic Company Limited. The new name was intended to emphasise the company's involvement in refractories (it was to change again in 1944 to The Steetley Company Limited and in 1982 to Steetley plc).

In 1935, to meet the increasing needs of the UK steel industry, Steetley acquired the dolomite deposits of the Conisborough Cliff Company Limited at Doncaster. The quarry is still in use providing ground dolomite products and building stone.

The company had thus achieved its objective of the strategic sourcing of Doloma supplies for UK industry.

As well as Doloma, the steel industry was also using increasing quantities of refractory bricks made from calcined magnesite or magnesia. Britain, however, has no natural magnesite deposits and depended entirely on imports. As an alternative, Steetley had made attempts at Worksop during the First World War to produce a brick made from dolomite. But it was to be many years before the company succeeded in making a stable dolomite brick that did not disintegrate on exposure to air.

Steetley also believed that it might be possible to separate the magnesia from the lime in dolomite on a commercial scale to provide an indigenous source of refractory magnesia.

Both these projects had high priorities in the national interest and received encouragement in the highest government quarters.

Pioneering magnesia from sea-water

As Steetley prospered, funds became available for research and development and in 1936 the first research laboratory was built at the Steetley Works. One of its first jobs was to explore the possibility of releasing magnesia from dolomitic lime (Dolime) by reacting it with sea-water, which also contained magnesia in solution. This process was suggested by the success of a small Californian company which in 1935 had begun extracting pharmaceutical grade magnesia from sea-water by precipitating it with lime derived from oyster shells.

The new process was seen as a possible way at last of reducing the UK's dependence on imported magnesia. The research work followed discussions between Mr N M Peech, the then chairman and managing director of Steetley, and Dr H Chesny who had been the technical director of the Californian company. In conjunction with the research staff at Steetley, Dr Chesny produced a satisfactory grade of refractory magnesia by reacting seawater with Dolime in an ordinary bath tub and firing the precipitated magnesia in a 6-ft long rotary tube.

Encouraged, Steetley bought a 24-acre coastal site at Hartlepool in 1937 and invested £ 10,000 in a pilot plant. This became known as the Palliser Works, after the wartime fortifications there. The British Periclase Company was incorporated in August of that year to erect and operate a full scale commercial magnesia plant.

While there were those who questioned the need to make magnesia from sea-water when it was possible to dig magnesite ore out of the ground in Europe and elsewhere, others saw the potential value of the process to a country which had no indigenous magnesite deposits. Encouragement came from the steel industry and government: the shadow of the second world war already lay over Europe and was likely to create a large demand for magnesia, both as a source for magnesium metal and as a replacement for imported refractory magnesia products.

In 1938 Steetley went ahead with the construction of a 10,000-tonnes-a-year plant at Hartlepool, financed jointly by the company and the Special Areas Reconstruction Association. When war broke out in 1939 Hartlepool was the only UK source of magnesia. Production, marketed under the name of Britmag, had totalled 4,000 tonnes by the end of the year, while investment in the plant had doubled.

Early in the war it became apparent that the demand for magnesia called for a rapid expansion of the sea-water process. At government request Steetley built a second plant at Harrington, near Workington, on the Cumberland coast, exclusively for the production of magnesium metal vital for the light alloys used in aircraft frames and for munitions. Completed in 1941 after only 12 months, both it and the Hartlepool works passed into government ownership. Production capacity at these two vital war plants was raised to a total of 66,000 tonnes of magnesia a year by 1942. By 1952, when Steetley was allowed to re-acquire its Hartlepool works, output at the plant had reached about 54,000 tonnes annually and £2 million had been invested in it. The Harrington plant was dismantled in 1954.

Steetley's pioneering Hartlepool plant was the forerunner of many similar undertakings around the world based on the same chemical principles using either brines or sea-water reacted with Doloma or lime.

A major extension of the Hartlepool works, increasing its capacity by some 40 per cent, was completed in 1962. This included the world's largest settling tank, a 2,000-ft pier to carry a sea-water pipeline and a 10-acre expansion of the site. For many years it was the largest plant in the world and had an ultimate processing capacity of nearly a quarter of a million tonnes of refractory grade magnesia a year. The plant was later developed to produce high quality chemical grades of magnesia as well as a range of refractory grades.

While work was beginning on the production of seawater magnesia in 1937, the experimental work begun in 1915 to produce stabilised dolomite culminated in a successful product. The process consisted of calcining a mixture of finely ground serpentine (a magnesium silicate rock) with dolomite to produce a dense, hard clinker resistant to deterioration in air, which could then be used for refractory brick production.

This success led to the setting up of the Refractory Brick Company of England to manufacture stabilised dolomite bricks, known as Dolofer. The factory could also make magnesite bricks from the new material becoming available from Hartlepool, thus helping to establish the acceptability of the new 'synthetic' or sea-water magnesia.

Steetley expanded its activities beyond dolomite and magnesia-based refractories, for example into silica firebricks, by taking over the Oughtibridge Silica Firebrick Company in 1947 and the associated Cleveland Magnesite and Refractory Company in 1952.

Steetley decided in 1952 to extend its dolomite activities outside the UK. It did this by acquiring the Canada Crushed and Cut Stone Company, which had large dolomite deposits in the Hamilton and Niagara Falls areas.

With the needs of customers becoming more sophisticated and more complex, Steetley recognised that further progress lay in the development of improved technology and products. In 1959 it opened new research laboratories and established the Steetley Organisation Research Department in Worksop.

Diversification-the emergence of modern Steetley

Since its inception, Steetley had been supplying stone to the construction industry alongside its refractory products. For a number of years it had also supplied aggregates to the first companies that established themselves in the new field of ready-mixed concrete. Seeing the potential this offered, Steetley decided in 1964 to enter concrete business itself and acquired two companies Alan S Denniff Limited and James Turner Limited. This introduced Steetley to sand and gravel extraction very different from its previous experience in hardrock quarrying.

This first move away from its previous heavy dependence on the steel industry led to the establishment of Steetley Construction Materials Limited. Now a significant and substantial business in its own right, this subsidiary has continued to grow through the addition of further companies and quarry sites throughout the UK.

Following the success of its Canadian Doloma venture, Steetley turned its attention abroad again in the 1960s, going into dolomite quarrying and slag processing in Spain, establishing with European partners a sea-water plant in Sardinia to produce very high purity magnesia and acquiring industrial mineral interests in Australia.

Meanwhile, the steel industry throughout the world had undergone another major technological change. In the 1950s a new steelmaking process had been invented that could accomplish in minutes what had previously taken hours. Known as the 'basic oxygen process', this involved blowing oxygen into a vessel filled with molten iron. It has become the world's major steelmaking method in place of the well-established open hearth system.

As a result, Steetley, during the 1960s, had to introduce new refractory and flux products of higher quality This meant altering manufacturing methods, closing some plants, expanding others and once more acquiring new dolomite reserves of higher quality to meet the new specifications.

The basic oxygen process also required high purity calcium lime and in 1968 Steetley acquired a limestone company at Dowlow, Derbyshire, so that by the end of the '60s it had a completely new range of flux and refractory grade products for the steel industry based on dolomite, limestone and magnesia. Again it had shown its ability to adapt and take advantage of market changes.

Steetley's next major move was into chemicals when, in 1970, it bought Berk Limited, a company that manufactured and traded in chemicals and also extracted and processed industrial minerals. It was Steetley's first acquisition of a publicly quoted company and opened new areas of opportunity. As well as adding, new markets and products, it also expanded Steetley's operations overseas.

Steetley's activities in the'70s were overshadowed by the energy crisis. It led to a re-examination of the company's operations, investment in new plant and technology, and further expansion abroad to increase overseas earnings.

With declining open hearth steel production in the UK, demand for traditional Britmag products was reduced. Two of the older refractory brickworks closed, leaving production largely concentrated at Worksop. But Steetley was also expanding. With rising fuel costs, the

company developed a new fuel-saving process that eliminated the pelletisation stage and one of the two burning operations involved in the manufacture of high purity, high density refractory magnesia. Steetley invested £3 million in a new plant at Hartlepool to operate this process, which has proved highly successful. Three companies with construction activities in the North East were taken over. Plant extensions at Whitwell quarry, the Stratford chemical works and the Hartlepool sea-water magnesia works were built. The Hartlepool extension, adding a 10,000-tonnes-ayear capacity for producing specialist chemical grades of magnesia, enabled Steetley to enter new markets unrelated to the steel industry.

Overseas, Steetley added industrial distribution to its interests in Canada, expanded its activities in Australia, Sardinia and Spain, went into sand and gravel extraction in France and started a joint venture in ready-mixed concrete in Saudi Arabia.

The new basic oxygen plants established by the British Steel Corporation in the 1970s created new demands that led to major investment by Steetley on two extensions at its Thrislington works. One of these was a £1 million plant capable of producing 500,000 tonnes a year of graded dolomite. The other, a £6 million third rotary kiln with high fuel efficiency, increased the production of burnt dolomite to 500,000 tonnes a year.

Other investments in the 1970s included a new plant at Widnes to manufacture rare earth and cerium compounds and the acquisition of a refractory repair materials company. In 1979 Steetley extended its dolomite business into the USA when, through its Canadian subsidiary, Steetley Industries Limited, it made two acquisitions at a total cost of $17.5 million. The biggest of these was the purchase of the Ohio Lime Company.

These investments were soon to be overshadowed by the £30.2 million purchase in 1979 of Gibbons Dudley Limited, a major facing brick manufacturer. This led to the creation of Steetley Brick Limited and other new subsidiaries in property and engineering. Steetley had entered yet another new market area and added significantly to its portfolio in construction materials.

As part of the same strategy, another well-known brickmaker, G H Downing & Company Limited, was taken over in a £16 million deal in 1981, adding clay roofing tiles and high quality facing bricks. Steetley became one of the principal makers of special quality facing bricks and clay tiles in the UK.

The world recession of the early 1980s struck harshly on steel, construction, engineering and chemicals, with the greater impact in North America. Adapting to these and other market forces, Steetley closed down its rare earth plant at Widnes and withdrew from chemical manufacture in the UK and its operations in Australia and Sardinia. Five of its 11 refractory plants were shut.

But, as in the past, Steetley continued to expand at the same time as it was contracting. It entered the waste disposal business, acquired a reconstructed stone manufacturing company, expanded its transport activities to take outside freight and opened a new transport depot at Dover to handle continental traffic. A new dolomite quarry was opened in Canada and another dolomite plant bought in the USA.

In 1983 Steetley opened a new stock brick plant at Bishop Auckland, and gave the go-ahead for a new £12 million brick factory at Parkhouse, North Staffordshire. When commissioned in 1985, the Parkhouse plant - the largest and most advanced of its type in Europe - will set high standards of efficiency in energy consumption and labour usage. A new £4 million clay roof tile factory, opened at Keele in 1984, has a capacity of 39 million tiles a year double that of the previous plant. The new plant features kiln and manufacturing processes with sophisticated computer control, resulting in highly efficient handling, processing and fuel consumption.

While Steetley's history is one of expansion and adaptation to change. it has had to contend with decline in the manufacturing industry, competition and predatory attack. In 1983, at a time of low earnings, it successfully fought off a £121 million takeover bid by Hepworth Ceramic Holdings. Subsequent financial results, reflecting a strong recovery, underlined the strategic strengths of Steetley.

During 1991 the company came under the ownership of Redland plc after unsuccessfully defending a ‘hostile’ take over bid. The magnesia operation was never a part of Redlands' core business and the seawater magnesia plant was sold mid 1997 to be renamed Britmag. Britmag traded to the end of 2001 and then due to insolvency went into administration early January 2002. The operation was reborn as CJC Chemicals April 2002 without the refractory production units. CJC Chemicals ceased production June 2005.

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