

## Selby's Mushroom Connections

*Links to fungi thread through Selby's history from the 1890s to the 1990s*

Selby has been connected to mushrooms and fungi for both scientific and business reasons for over a century. There are three main parts to the story : the foundation of the **British Mycological Society**, **Middlebrook Mushrooms** and **John and E Sturge and citric acid**.

The initial bond was via the interest of W .N. Cheesman of the well-known local business family, who led the family firm for many years until his death in 1925. Later in the 20th century, the firm of J and E Sturge Ltd used a fungal fermentation process to create the important chemical, citric acid, and finally Middlebrook Mushrooms were a well-known local producer of mushrooms until the early years of the 21st century.

Mr. Cheesman's interest with fungi came to a head with a meeting of the Yorkshire Naturalists' Union (YNU) in Selby in September 1896.

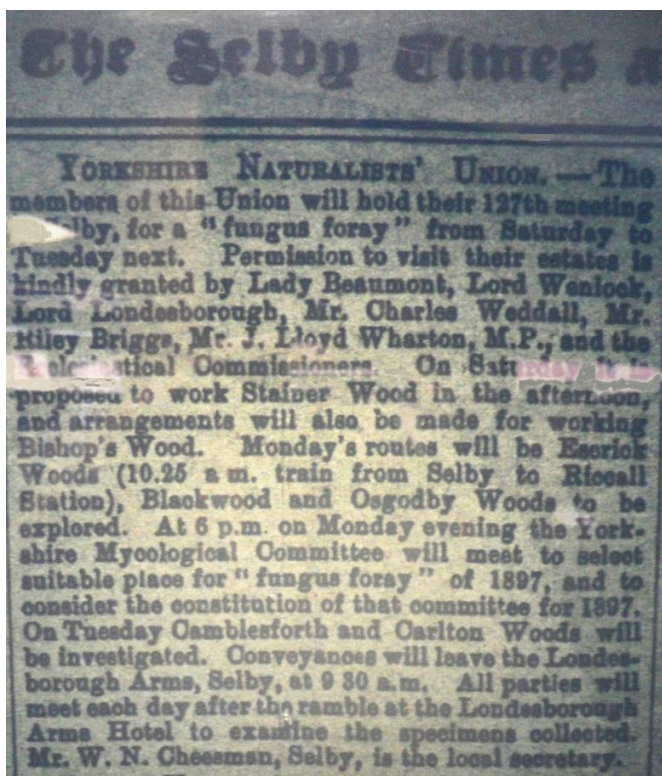
### Yorkshire Naturalists' Union



The YNU, which is still active today, describe themselves as being "devoted to studying and recording Yorkshire's flora and fauna".

They are an association of amateur and professional naturalists, covering a wide range of aspects of natural history, and are one of the country's oldest wildlife organisations, having been founded in

1861. The YNU held, and continue to hold, regular meetings throughout the historic county of Yorkshire to investigate the local environment.



One such meeting was held in Selby in September 1896, as announced in the 'Selby Times' of 18th September. These meetings consisted of discussions of the findings of members, discussion and identification of 'unknown' samples and descriptions of advances in botanical techniques. There was a social aspect to these gatherings, including grand dinners and field trips to investigate flora and fauna. When mushrooms were the object of the expedition, they were styled 'fungus forays', and one such jaunt was planned in Selby in at the September 1896 meeting.

As the story tells, the 'fungus foray' was clearly a grand affair involving links with people in positions of some authority in local society. The final line gives the name of the 'local secretary' of the committee, Mr. W.N. Cheesman.

## W.N. Cheesman

William Norwood Cheesman was born in Winterton in 1847 and spent the early part of his life in Hull.

He went from Hull to London to learn the drapery business and then at 25 years old he joined his uncle in the extensive drapery business at Selby which eventually became Cheesman (Selby) Ltd. He lived in Selby from 1870 until his death in 1925.

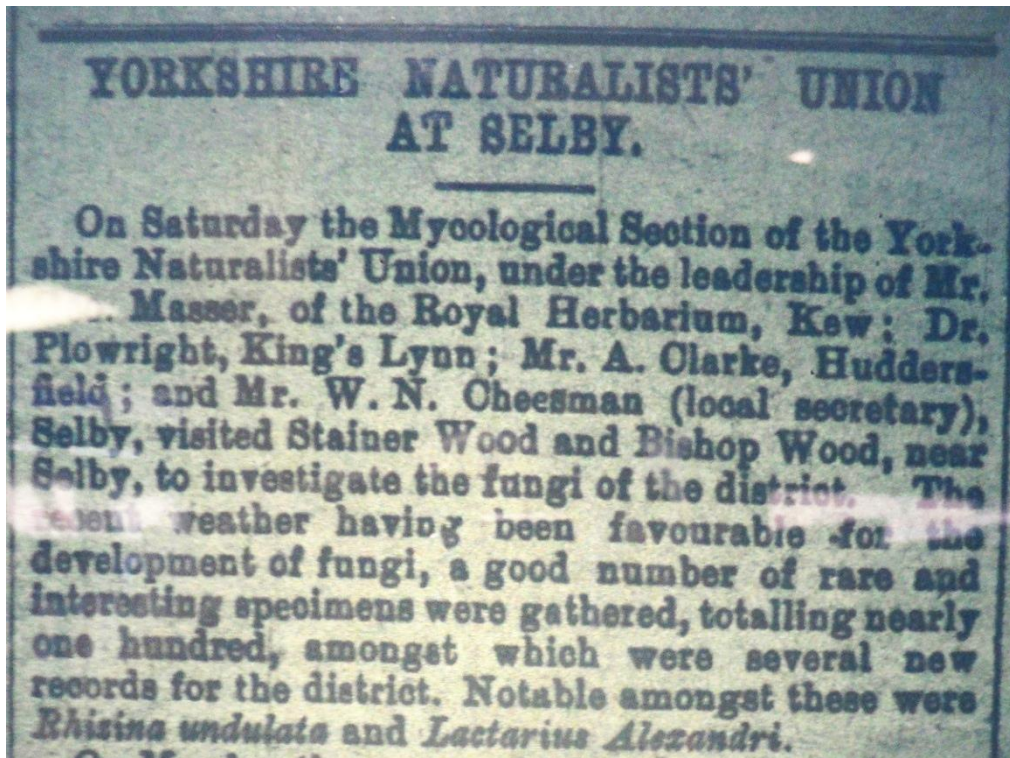
The 1881 census shows the drapery business was on the ground floor of 16 The Crescent, Selby, and William, his 2 sisters, 4 drapery workers and 2 domestic servants lived over it, probably on two floors.

In 1903 he was elected a member of the Linnean Society - the world's oldest botanical society - and in the course of the next few years went on trips around the British Empire, collecting samples of his particular speciality - slime moulds.

In the last few years of his life, he became a JP as well as President of the YNU and a Freemason. He is buried at Brayton Cemetery. Cheesman's Drapery was eventually taken over by Wetherell's in the 1950s.

## The Selby Fungus Foray of 1896

The 'Selby Times' reported positively on the foray in the edition of 25th Sept. The event went on on both Saturday and Monday.



As the final extract below shows, YNU members were so pleased with the outcome that it was decided to attempt to set up a national fungus society, and so the **British Mycological Society** came into being following meetings under Cheesman's guidance at the Londesborough Hotel in Selby in late September 1896

here and there. Fungi were unusually abundant, and, in fact, there has not for several years been a season so prolific in "toad-stools" as the present, both as to quantity and variety; the district, too, being a remarkably favourable one, more especially as compared with the Huddersfield district, visited last year. One of the remarkable kinds observed was that known as the "beef-steak" both for its appearance and its edible properties. The members, under the guidance of Mr. W. N. Cheesman, spread themselves far and wide. Only a portion of them

Further extracts from the 'Selby Times'

of beautiful coloured figures. Votes of thanks were passed to the authors of the papers, to the chairman, and to Mr. Cheesman for the excellence of the arrangements he had made. The foray altogether was remarkably successful. During its course steps were taken by several of the leading members for the formation of a new British Mycological Society, which is to be to the United Kingdom at large what the Mycological Committee has been for several years to the county of York. It is anticipated that its operation will be to enhance rather than to diminish the interest taken in the Yorkshire gather-

### **The British Mycological Society**

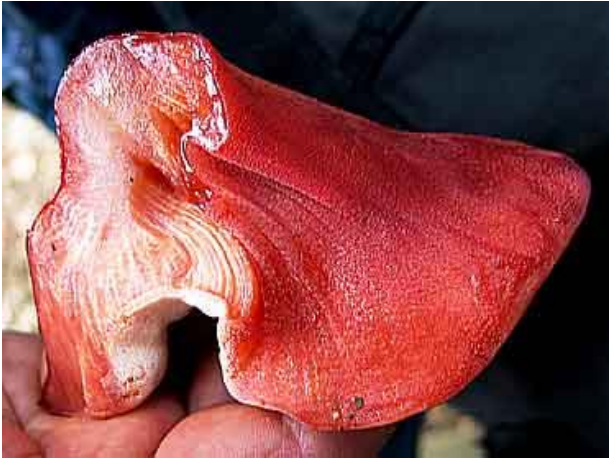
From foundation by around 20 enthusiasts in Selby in 1896 the British Mycological Society has grown to be one of the major players in its field. The Society continues to play an active role in the study of fungi for academic and industrial purposes, as well as acting as a centre for those interested in any form of fungi. It is now based in Manchester, but has a website detailing all its activities (see 'Taking things further').

It also produces publications, funds scientific research and runs academic conferences. And it still has a fungus foray!

Cheesman was its president in the year of his death, 1925.

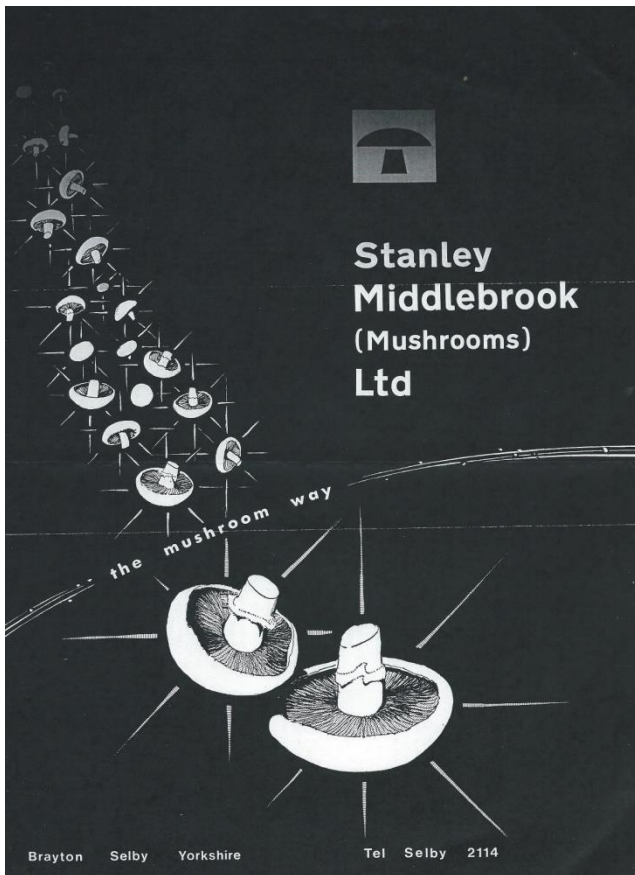


Cheesman at a YNU meeting (courtesy of the archives of the Selby Scientific Society)



Examples of unusual fungi

'Beefsteak' to left and 'Shaggy Inkcap' to right.



Selby's Mushroom story now moves forward by around two decades to **Middlebrook Mushrooms**. Founded in 1935, by Stanley Middlebrook, his company had around 25 acres of purpose-built mushroom sheds in two factories, at Brayton and Gateforth.

By 1972 it had become, according to an industrial review in the annual 'Guide to Selby', the third largest producer of mushrooms in Great Britain, employing over 300 workers and growing in excess of 6 000 000 lbs of mushrooms annually. By the 1970s, these were distributed by road, but a 60's version of the guide referred to rail transport direct from Selby, owing to the town's excellent rail connections.

The company continued to expand through the 1980s, but an industrial dispute, followed by a takeover led to subsequent closure of the factory. According to a story in the 'Independent' of 24th July 1993

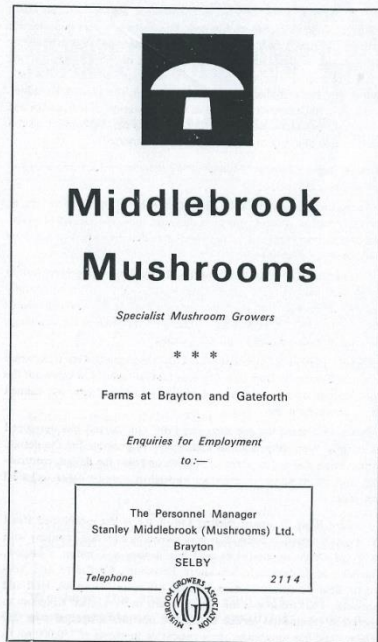
*Around 80 mushroom factory workers, all women, were sacked after a dispute beginning in October 1992 when Middlebrook management insisted on a reduction in wage rates, recruitment of casual workers for weekends and inferior working conditions.*

*When talks with the company broke down the Transport and General Workers' Union decided to hold a ballot on a series of strikes after an overtime ban had proved unsuccessful.*

*When the company heard the women were to hold a vote, managers called the mushroom pickers into the canteen on 20 November and told them they were being sacked and that they should leave the premises immediately.*

*The company claimed that the reduction in pay rates was linked to the advent of Sunday trading, and that the pickers' rates of overtime pay were much greater than other factory workers.*

The dispute continued in a fairly acrimonious way for several years.



The principle that arose was eventually settled at the High Court in London, around a decade later in 2004, and this settlement had ramifications for the national minimum wage and terms of employment in the agricultural sector as a whole.

A summary of the ruling is

*In 2003 a new category of worker, the Manual Harvest Worker ("MHW"), was established, but mushroom harvesters were excluded from this category. The MHW minimum wage was lower than that for a Standard Worker. So mushroom growers were the only producers not allowed to employ harvesters at the lower MHW rate.*

*Several mushroom growers objected to the exclusion, but the objections were rejected and the exclusion kept because mushrooms are not a seasonal crop.*

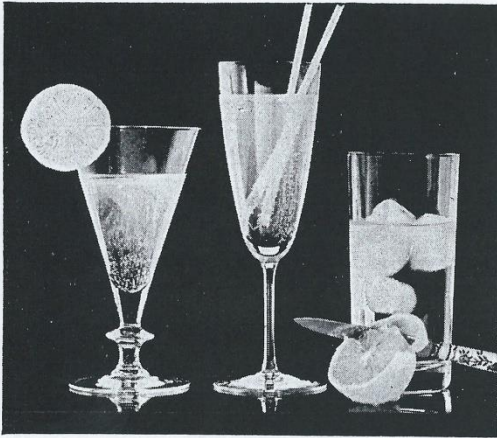
*Middlebrook - now the largest UK mushroom producer - went for a judicial review. This came down on the side of the growers, deciding that exclusion of mushroom harvesters was discriminatory, without objective or reasonable justification, unreasonable and infringed the producers' rights under Article 14 of the ECHR read with Article 1 of the First Protocol.*

The effect of this ruling was that the mushroom harvesters' rates of pay could be reduced.

However, by this date, Middlebrook had long since ceased to be an independent firm, having been taken over by Irish-based Monaghan Mushrooms in 1994. The Gateforth site was closed in 2008. It has become a site that has been heavily vandalised and subject to arson attack. It has also been visited by those who enjoy derelict industrial sites, and a Google search easily finds images of the dereliction. There have been plans to use the site as a base for Travellers, but little has come of this to date.



Mushroom sheds at the Gateforth site



## Some things the lemon still does better

To accompany a long cooling drink, or better still, a short stimulating one, you'll ask for lemon, not citric acid. Well done that lemon, long may you prosper. However, if you're a food, drink, or medicine manufacturer, you'll go for Sturge citric acid. It has no pips, maintains complete consistency, and doesn't roll about. Made right here in Selby, citric acid is just one of the many fine chemicals which Sturge supply to enlightened manufacturers all over the world.

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An independent Company manufacturing fine chemicals since 1823.

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The final part of Selby's link to fungi is another industrial link, of a firm of rather longer history, that of **John and E Sturge**.

A chemical firm, established in Birmingham in 1823, Sturge came to a factory in Denison Road, Selby in 1940. The main product from the Selby factory was citric acid. Originally it was produced direct from lemon and limes imported from plantations in Sicily and then ones owned by the company in Montserrat.

However, in the 1960s and 70s a method of producing citric acid from molasses, using the fungus *Aspergillus niger* was developed. This



(image courtesy Wikipedia)

fungus is the black mould that is sometimes seen on the rotting bulb of an onion.

In very simple terms, under certain controlled conditions *A. niger* converts the sugar in molasses into citric acid - similar to yeast converting sugar to ethanol in beer and wine production. An early process at Selby used the so-called "surface growth" method in which the fungus was grown as a surface mat on trays of molasses medium, and citric acid was secreted into the liquid medium. This could then be extracted and purified to a white, crystalline powder. Later a more efficient method was developed where *A. niger* was grown in stirred fermentation vessels - the so-called "submerged process".

The great advantages of these methods were that the production of citric acid could now be carried out in a much more controlled way, the volume of product was not subject to the vagaries of the citrus fruit crop, and the raw materials for the process, molasses produced from locally-available sugar beet were much cheaper and more easily available.

The science behind this process was so remarkable that Sturge were awarded the Queen's Award for Industry in 1972. However, the fungal processes - surface and submerged - were respectively very labour and energy-intensive, and as these costs rose in the Western world, the production of citric acid - as with many bulk

chemicals - switched to the Far East where such costs were much lower, and long-distance bulk transport costs were relatively low.

**Citric acid** has a huge range of uses.

Its most well-known application is in the food industry. Apart from substitution for lemon juice, citric acid is used as a flavoring and preservative in food and soft drinks, and also helps to add the 'fizz'. It is used in ice cream to prevent fats separating. It has the E number **E330**.

In the kitchen, it controls acidity levels in household cleaners, and acts as an excellent stain remover from work surfaces. It is used to remove limescale from boilers, and can be used to soften water, which increases the effectiveness of soaps and laundry detergents.

In the bathroom, citric acid is used with sodium bicarbonate in bath salts and bath bombs. Citric acid is the active ingredient in some bathroom and kitchen cleaning solutions. It is in shampoos to remove wax and hair colouring.

In industry, it is used to dissolve rust from steel and as a descaler.

With such a wide range of uses, a company that could make citric acid at low cost was in a good position.

From a peak production of some 30 000 tonnes annually, Sturge gradually lost market share to the Chinese. Sturge themselves were taken over by the German company Haarmann and Reimer, who were themselves taken over by Tate and Lyle in 1998. However these amalgamations could not counteract the huge commercial advantage the Chinese had and closure came in 2007 following a year in which the plant made losses reported at £2million on sales of £26 million.



*"Do you suppose our work will survive us, Brother John?"*

*"Indubitably, Brother Edmund!"*

John Sturge was right. With more than 150 years of fine chemicals manufacture behind it, the firm he founded in 1823 is still going strong.

Of course the brothers could never have foreseen the world leadership which Sturge holds today in production of citric acid by deep fermentation. They'd be positively startled by the products and processes the company is working on for tomorrow.



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### **Taking things further**

[www.ynu.org.uk](http://www.ynu.org.uk) - the website of the Yorkshire Naturalists Union

<http://www.britmycolsoc.org.uk> : The website of the British Mycological Society

[http://www.1cor.com/1315/?form\\_1155.replyids=939](http://www.1cor.com/1315/?form_1155.replyids=939) : The full judgement on  
Middlebrook workers' case