

# MAKING GLASS AT CHANCE'S GLASSWORKS

## A VISITOR'S ACCOUNT FROM 1852

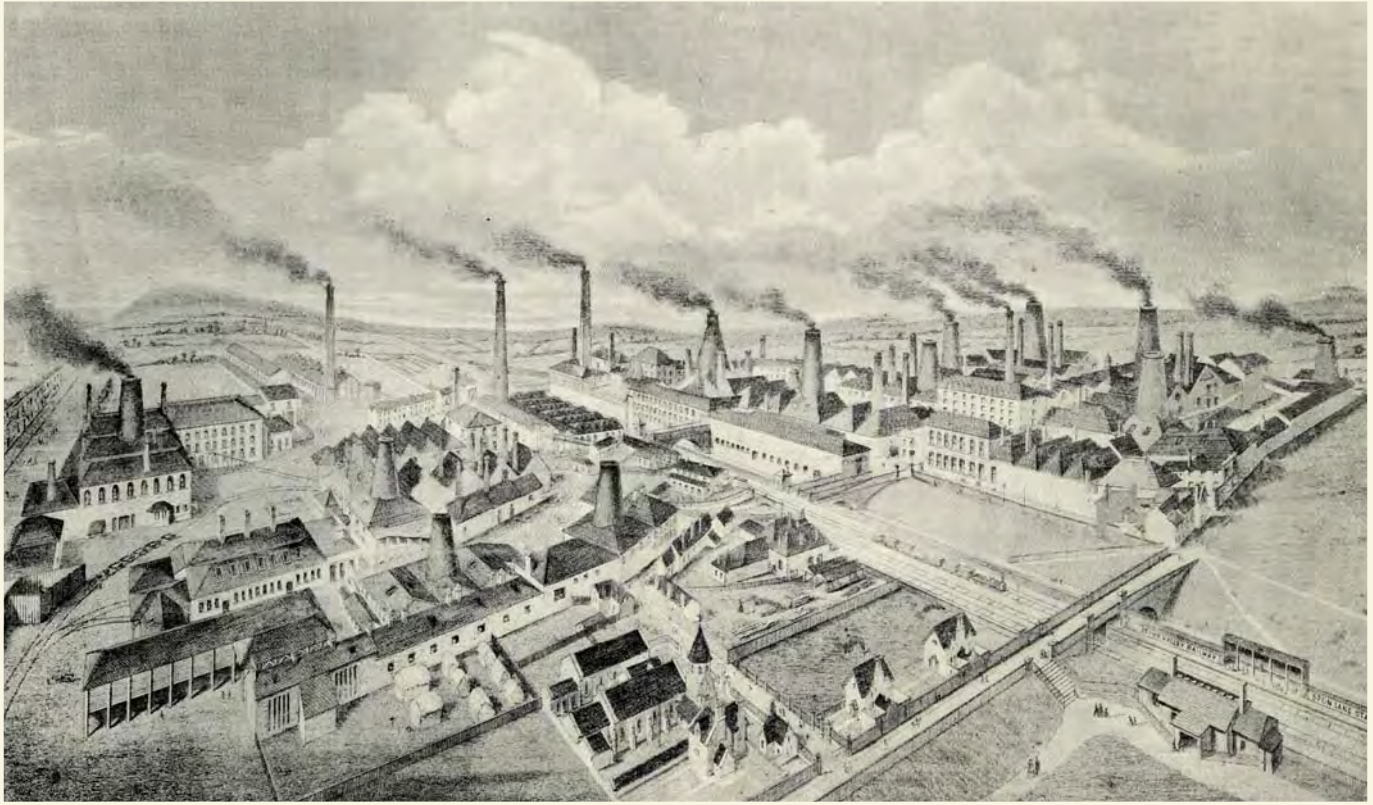
Tom Gidlow

Located in Smethwick, Chance's Glass was one of the largest glass manufactories in the country. The establishment provided the glass used to build the Crystal Palace in Hyde Park, which housed the Great Exhibition of 1851. The palace was one of the greatest pieces of industrial art ever created. In 1852 the factory was visited by Harriet Martineau.

© National Portrait Gallery, London



*Harriet Martineau* by Richard Evans, 1834.



Chance's Glassworks, 1857, a few years after Harriet Martineau's visit.

**H**arriet Martineau was a nineteenth-century journalist for *The Daily News* and *The Westminster Review*. Her visit to Chance's was to research for an article to write for *Household Words*, a literary periodical edited by Charles Dickens. Her purpose was to show daily life in the factory that produced the glass for the Crystal Palace. This was at a time when factory tourism was growing, particularly in the glass industry. It was common for journalists to visit factories and report on the mix of physical toil and craftsmanship it took to produce the industrial art of Victorian society. Following Martineau's journey, and using other sources, we can rebuild the world in which Chance's employees lived.

### The Factory Site

Upon her arrival at Chance's in 1852, Martineau remarked:

*'Visitors to the works may pass hither and thither for four or five hours together without entering the same place twice... The vastness of the buildings is as striking as their number; and the passage through lofty, dim, cool, vault-like sheds, is an admirable preparation for entrance among the furnaces and kilns.'*

The site was vast, covering approximately 40 acres in Smethwick. The factory consisted of many buildings with varied purposes, ranging from housing the kilns to storing the Stourbridge clay or the Leighton Buzzard sand, drawn from a quarry which was also owned by Chance's.

Surrounding the actual works were the houses of the workers, who typically lived just off site. At the time of Martineau's visit there were about 1,200 people in employment, increasing to about 1,800 by the end of the century. Most of the workers were men, as was generally the case in the glass industry.

The site's transport needs were serviced by the canal, and by a rail connection which branched off the main track into the factory grounds. Each day boats would arrive at a purpose-built shed and coal would be unloaded – the factory consumed around 1,000 tons a week. Once empty, the boats would be refilled with either finished glass or shards.

At the time of Martineau's visit the firm made a point of employing a man with severe mental health issues alongside the women who sorted the glass. His job was to sweep the shards away. In a time before social welfare this stopped the man starving.

It was beneficial that transport connections were so good, as the pollution from the factory meant that on rainy days the roads became nearly unusable due to sticky, black mud.

In 1868 the closeness of the train tracks led to a spark from a train igniting the boat shed, causing nearly £1,000 of damage. Fire was especially dangerous. To counter this, it was mandatory at Chance's for all male workers to have fire training, and three engines were kept on site permanently. It was the workers who fought this fire.



## Into the Furnaces

On her tour of Chance's, one of the first things Martineau saw was the creation of the clay pots used in the furnaces: *'There are three pot-makers in the establishment; each of whom makes three pots a week. One of them is busy now, with a labourer and a girl to help him.'*

Each set of workers had their own specialisation and skills. It was not uncommon for children to be employed at this time in Britain: however, compared with most industries, glass employed a higher proportion of adults. Although most West Midlands glass makers, such as those in Stourbridge, hired children from the age of around nine or ten, Chance's officially did not employ anyone younger than twelve. In reality, younger children were employed. The girl Martineau saw was employed to roll up the clay in preparation to be made into a large pot.

Nationally, it was normal practice for children working in industry to be employed not by factory owners, but by the masters and workmen. The wages the adults were given often included an amount it was presumed would be spent upon child labour. This was not the case in Chance's, where all children were employed by the company directly. This meant that they were protected from the beatings and general maltreatment that other children suffered. Child employees also received a Christmas box from the company every year.

Martineau's tour continued past the pot-makers and on to the first set of furnaces:

*'We find ourselves on a sort of platform, in front of six furnace mouths, which disclose such a fire within as throws us into secret despair; despair for ourselves, lest we should lose our sense, and for the men, because it seems impossible to live through the day in such a heat.'*

We have no exact recordings of the temperature of the fires at Chance's. We know, however, that the furnace mouths (not the core) at the Islington Works in Stourbridge were recorded at 200°C. In this room, men would use a pipe to take up the honey-like molten substance and lay it across a trough. It was the job of a boy to blow into the end of the pipe in order to create a globe shape. We are uncertain of the exact ages of these boys, as often at this time the term 'boy' could be used for anyone up to the age of 21 who had not yet completed their training.

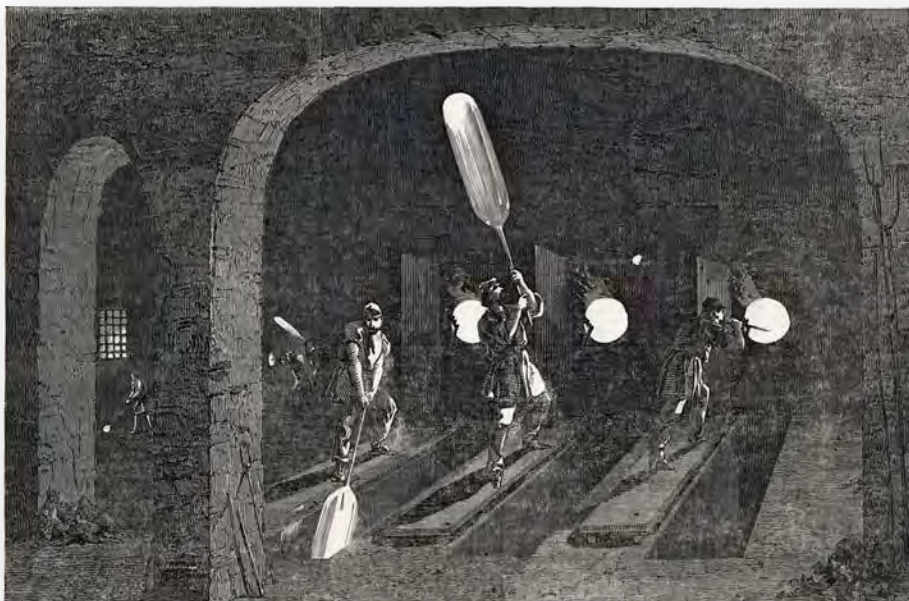
This job clearly required skill, as Martineau attempted to blow the pipe and was unable to achieve anything at all. The globe had to be a certain size before it continued to the next room.

## French and Belgian Workers

The path to the next room was a bridge over a large, deep chasm. Each worker would run across this bridge, swinging his pipe in order to create a longer, cylindrical shape. Once crossed, the bridges led to another room with even hotter furnaces. The men working here did all they could to stay cool:

*'Some of the men have bare feet and legs; some have no clothing but drawers and a blue shirt; one or two, indeed, add the article of gold earrings, being Frenchmen. All have glistening faces.'*

Martineau is referring to the community of both French and Belgian workers at Chance's. They came over when eminent Parisian glass maker Georges Bontemps began his employment in 1848. It was the knowledge of these foreign workers that enabled Chance's to move ahead of other national competition.

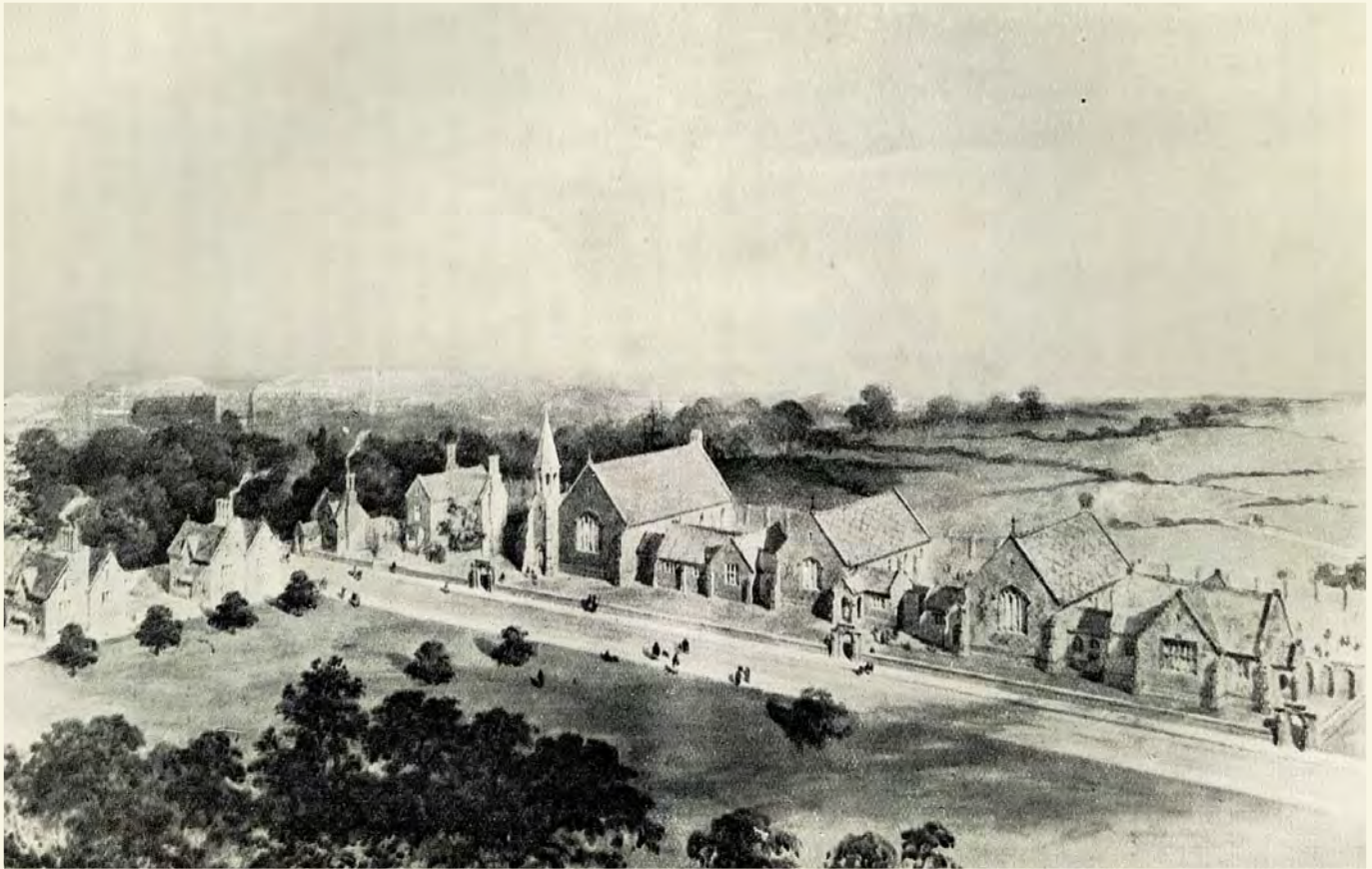


*Manufacture of glass for the Crystal Palace at Messrs Chance's Works, Spon Lane 1849.*

Crucially the French and Belgians could make sheet glass. These people formed a distinct community living on the same row of houses close to the factory – they even built their own Cabaret house. Generally relations were good: however, fights were known to break out between the nationalities.

## Shifts of Work

Workers in the furnace areas frequently attached gauze to their hats to shield their faces, or would hold up wooden screens for each other. Martineau was baffled at how the men could bear it. Most likely it was made possible by the hours of work. Glassblowers worked in 'journeys', or shifts, and operated through four rotating pairs to allow for breaks. Journeys would last 7–8 hours and could be at any time day or night. This would continue for four or five days per week. In addition around an hour and a half to two hours was allowed for meals, meaning a glass-blower would work around 35 hours a week. In comparison, other workers at Chance's worked a 59-hour week, reduced to 54 in 1890.



Spon Lane School designed and run by Chance's for the children of the workforce and the young people working at the firm.

For their time, the typical men's wage at Chance's in 1843 was between 25s and 45s per week, depending on their skill level and job. The same was true for French workers: however, the Belgians often received less. Children could expect to make 5s or 6s per week.

The timing of this work meant that often glass workers had much more leisure time at their disposal than workers in other industries. Martineau claimed that this could often be a problem: *'The public-house used to be a terrible temptation to men so tired, heated and thirsty; and to many it is so still.'*

## Education

This concerned the firm. In order to counter the public house, Chance's began to involve itself in their workers private lives, often to their betterment:

*'Of late, reading-rooms have been opened, which appear to be an inestimable resource. There the workman may enter at any hour during the day, and find a good fire; a table covered with newspapers and other periodicals, and some comrades reading the news. There is a good and increasing library; and the men may take the books home; and are encouraged to do so, that they may spend the evening with their families.'*

After visiting the Manchester cotton mills and seeing the schools there, Chance's also set up Spon Lane School in 1845. The firm spent over £20,000 setting up the school, approximately £2.2 million in today's money. They erected ten buildings that were light, spacious and well ventilated. Chance's also ensured that it continued to be well funded, until it became part of the Harbourne Education Board in 1887.

At this school, local children received a basic education in reading, writing and arithmetic. Over 42 years Spon Lane School educated around 10,000 boys and girls. Although funded by the company it was not free, costing 3d per week for the poor and 6d for the rich. All children were welcome to attend, whether they were connected to the factory or not: however, after 1868 under-18-year-olds who worked for Chance's received a fine if they were not in school.

## Grinding the Sheets

Once the glass-blowers had done their work, the glass went on to grinding. Upon seeing this, Martineau was struck by the horrific sounds of this process:

*'The noise is horrible. Noise and rouge, and the tyranny of the rolling presses over the tortured sheets, bound down immovable, give an infernal aspect to the place, very unlike some things that remain to be seen.'*





Chance's factory as it is today.

The fact that Martineau found the noise such a problem, despite being quite deaf herself, shows just how unpleasant this room was. Although the heat of earlier parts of the factory is particularly shocking, it was this process that was probably most dangerous to the employees, especially the younger ones. A government enquiry in 1843 found that the heat actually had no long-term effects on the health of the young workers – the biggest danger was the dust used in the grinding process.

During grinding a powdered compound was added to assist the process – the ingredients were  $\frac{1}{4}$  tin and  $\frac{3}{4}$  lead. This powder was often inhaled by children, and could easily become stuck under the fingernails. Once under the nails the dust would cause the hand to contract painfully and it could also be accidentally consumed in food. Ingesting this dust caused serious vomiting and stomach problems. This meant that children in this area of the factory were often pale, thin, and small for their age.

## Welfare Provision

When Martineau visited, protection for workers injured, taken ill, or killed through work was still a new concept. The Provident Society, or the 'Sick Club' as it was called, was set up in 1841 and provided protection. For a membership price, upon sickness or death that person or their family could claim a weekly rate. In 1841 this stood at between 2s to 8s for sickness and £1 to £4 for death.

Although the 1880 Employers' Liability Act did afford some protection for workers, many workers at Chance's chose to opt out of this law in favour of staying with the Provident Society scheme, as it had wider coverage. In 1886 A. M. Chance claimed that all of the 232 people injured at work between 1880 and 1885 received cover from the society, whereas only ten would have under legislation alone. In addition, from 1898, the firm contributed £150 to the fund for every £100 contributed by employees.

## Finishing the Product

This was the main part of the glass-making process where Chance's, and indeed most glass makers, employed women in great numbers. After grinding, the glass:

*'must be smoothed by hand; and this is done by women, who rub them with fine emery, and remove any remaining specks. From forty to fifty women are employed in this work at long tables, where their action is very graceful, as they bend over their work at long tables, and use the steady and equable pressure required.'*

The glass also required washing before it could be sold or further decorated, and this was typically the job of women too. Although we cannot be sure of the exact demographic amongst employees, a large proportion of female applicants to work at Chance's were widows.

In the final room that Martineau visits, men, women and children worked together on the process of decoration:

*'In another room, boys are cutting little squares of glass on marked counters, with rulers and glaziers' diamonds... We find men, women and boys painting and enamelling glass... A woman is covering a sheet all over, except a border, with some thick black substance... she is protecting all the rest of the surface [from acid]... An artist is painting a broad border with the blue iris – as beautiful as life – and convolvulus and poppies.'*

## Conclusion

Martineau's record of her 1852 visit to Chance's is a wonderful source that allows the historian to get inside the lives of the regular employees at Chance's glassworks. Life here was far from easy, and death, injury and illness still surrounded this factory as it did so many in industrial Britain.

However, the experience of the majority of workers was far better than in almost every other industry, and Chance's should be thought of in the same way as Cadbury's regarding employee protection. The employees were generally respected for what they were – industrial artists.

Though production of glass has ceased at the site, several buildings remain as a local landmark. ●

**Tom Gidlow** is a final-year history student at the University of Birmingham.

### Further Reading

Isobel Armstrong, *Victorian Glassworlds*, (Oxford University Press, 2008).

J.F. Chance, *A History of the Firm of Chance Brothers & Co., Glass and Alkali Manufacturers* (Privately Printed, 1919).

Harriet Martineau, 'Birmingham Glass Works', *Household Words*, Vol. 5, March 1852, pp. 32-38.

Search for Chance Brothers on the Black Country History website:

[http://blackcountryhistory.org/collections/getrecord/GB146\\_BS6/](http://blackcountryhistory.org/collections/getrecord/GB146_BS6/) and on Revolutionary Players: [www.revolutionaryplayers.org.uk](http://www.revolutionaryplayers.org.uk)