

# The Nailsea Glassworks,

Nailsea, North Somerset

The Human Story  
(The economic and social impact)

Nailsea Glassworks Study 2004 - Part 4



on behalf of:

**Tesco Stores, Limited.**

Andrew F Smith,  
**Avon Archaeological Unit**

## The Nailsea Glassworks

Nailsea, North Somerset

### **The Human Story**

(The economic and social impact)

Andrew F Smith, BSc, MA, CEng, MIEE  
Avon Archaeological Unit,  
Bristol  
July, 2004

#### ***“Interior of a Glasshouse on the Hotwell Road. c.1820”***

© Bristol Museums & Art Gallery

*The cover illustration is a watercolour by George Cumberland (1754 – 1848). The accompanying description reads, “The Limekiln Lane Glasshouse was in operation from c.1720 until the mid-1830s, producing bottles. This view, by the amateur artist, George Cumberland, shows the centre of the glass cone with the ‘pots’ of molten glass grouped round the central furnace. A group of glassworkers are resting, surrounded by the tools of their trade – blow irons and pontil rods lean against the wall. A mould and a shaping tool lie on the ground.”*

*Purchased in 1989 it is reproduced by kind permission of Bristol Museums & Art Gallery.*

[It is reproduced as an illustration of workers in their working environment, with the additional interest of being a contemporary painting. While clearly not Nailsea, the Limekiln Lane works were owned by J R Lucas before he established those at Nailsea, and as he then built a bottle house at Nailsea, it was felt appropriate on two counts.]

## CONTENTS

CONTENTS .....	ii
LIST OF FIGURES.....	ii
Acknowledgements: .....	1
Copyright .....	ii
Picture Credits .....	ii
INTRODUCTION .....	1
1. ECONOMIC BACKGROUND.....	1
2. SOCIAL BACKGROUND.....	8
Table 4.1 - Summary of 1841-71 Census Returns for French Rank/Row, Nailsea	9
BIBLIOGRAPHY .....	21
APPENDIX 1 - Part of John Eyres' Autobiography.....	23
APPENDIX 2 - Evidence from Nailsea – Children's Employment Commission 1865 .....	27
APPENDIX 3 - Historical Context.....	30

## LIST OF FIGURES

Figure 4.1: Comparison between sheet glass production and that of crown glass	3
Figure 4.2: Job/Age Distribution - 1851 census	10
Figure 4.3: Interior of Powell's Bottle Works, Bristol, 1846	15

### Acknowledgements:

In general these are all covered in the main Introduction to the Study.

Particular acknowledgement must be made to The Office for National Statistics for providing extracts from *Vol. IV, Census of England and Wales 1871, General Report* and the *Thirty-fourth Annual report of the Registrar General. Births Deaths and Marriages in England, Abstracts of 1871* [despite its title it includes Wales] to enable the mortality rate comparisons to be made. Acknowledgement is also due for the use made of the *Oxford Illustrated History of Britain* in particular, in the compilation of Appendix 3.

### Copyright

Please see the Copyright statement in the main Introduction to the Study.

### Picture Credits

The cover illustration is of the interior of the Limekiln Lane Glasshouse, Bristol. © Bristol Museums & Art Gallery, and reproduced by kind permission. A condition of photographing material there is the transfer of copyright to the Museum.

“Interior of Powell's Bottle Works, Bristol, 1846” Figure 4.1, is © Somerset County Council - reproduced with permission from Somerset County Archivist from a billhead in SRO: D/B/bW 2349: J Chubb papers.

All other figures and photographs are by the author or derived from material held in the archive or in the North Somerset SMR, unless credited to the contrary in the text or adjacent to the Figure (s)/photograph(s) in question.

## INTRODUCTION

It is to be expected that an industry, such as the Nailsea Glassworks would have had a major impact on the local community, in a number of different ways, not only when it arrived, but also when it closed.

That impact will be translated into effects on the workers, the owners, the management and the local community, where known or implied, hence the title. The purpose of this part of the Study is to explore that impact and try to put it in context. The writer is neither a social scientist nor an economist, so what follows may not satisfy a purist; it is hoped that as a layman's approach it will be acceptable to a wider readership.

Again, as stated in the Introduction to the Study, it must be remembered that we only have a few snapshots in time, and the assumption that conditions were uniform over the life of the works must be avoided. One of these snapshots is reproduced here as Appendix 1. It is part of an autobiography of John M Eyres. His letter to H St George Gray has already been included as Appendix 9 in Part 3 as containing more technological information, but it would still be worth referring back to for some of the personal details. Appendix 2 includes local evidence to the Children's Employment commission of 1865, and Appendix 3 gives a historical timeline over the life of the works, to give a wider perspective.

### 1. ECONOMIC BACKGROUND

The late 18<sup>th</sup> century in Britain was a time of considerable change; the Industrial Revolution was well under way.

The principal item in the macro-economic picture affecting glass manufacturers, besides international political issues, was the Excise duty, and this was in place well before Lucas founded the glassworks at Nailsea. In fact one writer has stated, "One can only guess the line of reason pursued by Lucas ..." <sup>1</sup> in the face of the very punitive rates. This is not the place for a detailed exposition on the Excise duties, that were more complicated than the simple outline below, but some relevant data should be noted.

First imposed in 1695, repealed in 1699, re-imposed in 1745 and, as mentioned elsewhere the rates doubled in 1777, as a war measure, from 9s 4d to 18s 8d. This was in addition to an annual fee in the order of £20 per glasshouse. It was not only the rates that were punitive, but,

"The regulations of the excise, with regard to the manufacture of glass, are penal in the extreme. The manufacturer cannot be said to be the owner of his own concern; as, by the existing state of the excise laws, the business and premises are placed under the arbitrary control of a class of men, to whose will and caprice it is most irksome to submit. Parts of the premises cannot be entered without the permission of those officers; and no one act can be done in the conduct of the manufacture without having previously notified same to the officers; and it often happens, that in the course of the week, as many as one hundred notices have to be drawn up and served, under penalties varying from £200 to £500, for each omission, whether wilful or otherwise. Thus, the consumption of glass is reduced far below the limit to which it would otherwise have arrived, were it not for the excise duty. Nothing can demonstrate this more than the fact, that in the year 1794 the quantities of glass charged with duty were:—

	Cwt.
Flint and Plate	67,615
Crown	83,940
Bottle	227,476

---

<sup>1</sup> Dommett, 1985, p.36

In 1813, the duties were doubled, and the quantities declined to—

	Cwt.
Flint and Plate	29,600
Crown	57,758
Bottle	153,595

In 1825, the duties were again reduced, and we find, in 1828, the quantities charged with duty increased to—

	Cwt.
Flint and Plate	68,134
Crown	90,603
Bottle	224,864

These returns relate to England, ...”<sup>2</sup>

In a similar context, Barker notes that, “that the excise officers interpreted ‘squared’ to mean at right angles and broke every plate that was no so cast.”<sup>3</sup> It appears that the interpretations of the regulations that placed on the glassworks were not necessarily the intentions of the legislators, because the *Thirteenth Report of the Commission of Excise Enquiry* on glass, 1835 shows the Commissioners to have been very disturbed by the facts that emerged with regard to the overbearing attitude of the Excise. The alternative explanation is that the climate with respect to what was acceptable had changed considerably since the legislation was first framed.

In 1865, in the initial paragraph of his ‘Report upon the Glass Manufacture’ [see below for further extracts] to the Children’s Employment Commission, Mr J E White, mentioned the size and importance of the industry. He continued, “One of the chief causes to which this result is attributed is the repeal of the duties which pressed upon the manufacture, and some of which interfered much even with the mode of conducting it. The removal of such restrictions naturally led to important improvements and cheaper and increased production.”

It is apparent from the Introduction to the study that the partners had to make considerable capital input to the business. For example, the Napoleonic War with France severely affected exports to America, one of the principal British markets, that had already been aggravated by the American War of Independence.

For a while, the technology was such that crown glass could be made thinner than sheet, but once that point was crossed over, the sheet glass makers proceeded to make a better profit on their export sales. It appears therefore that it was largely the Excise duties that held back the changeover, because any glass made, even if for experiment would have been taxed. The advantage for the glassmaker was that while the duty was imposed on the weight of glass made, window glass was sold by area and quality, quite reasonably. Therefore it was noted that while the weight made did not for a period increase significantly, the amount sold did, as panes became thinner. Sheet glass, as already mentioned in Part 3, had been allocated the same rate of duty as crown, together with the same privileges of ‘drawback’ on exported material, which in the case of crown glass was to compensate for wastage in cutting rectangles out of a circle. Since 1813 this was “£4 18s 0d per cwt on panes of glass on which £3 13s 6d had been paid”.<sup>4</sup>

---

<sup>2</sup> Crean, M, 1844, p.4

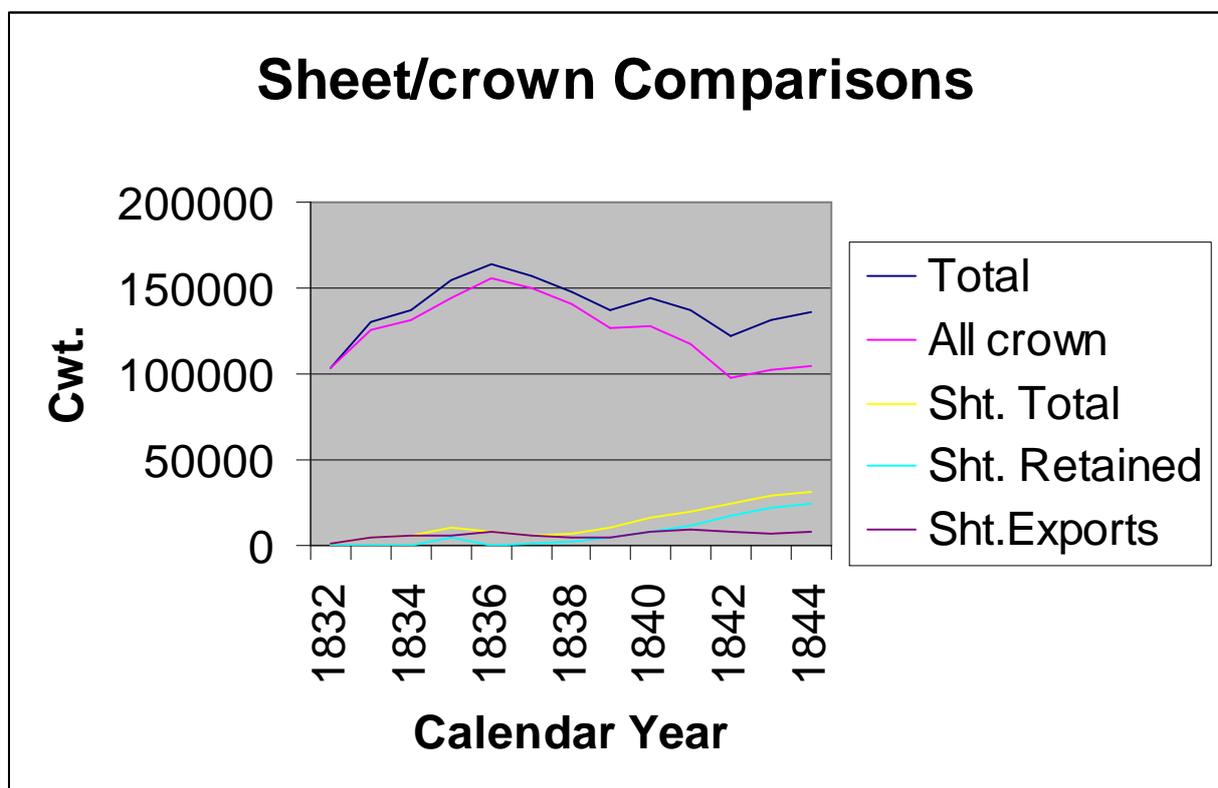
<sup>3</sup> Barker, T C, p.18

<sup>4</sup> *Ibid.*, p.59-60

With so much less wastage from cylinder glass, as Barker states on p.60, “What was a compensation to the exporter of crown became a bounty for anyone who chose to send abroad panes of sheet.” Waking up eventually, the Excise reduced the drawback on sheet glass to £4 4s 0d in 1835, and to £4 0s 0d in 1838.

Table 2 in Barker, p.62, give figures for *British Sheet Glass Exported and Retained for Home Consumption, 1832 – 44*. In 1832, Exports were 692 cwt, Retained, 179 cwt while total crown production was 103,030 cwt. Exports rose to a peak of 8,498 cwt in 1836, with nil Retained and crown also peaked at 155,431 cwt. Thereafter, home consumption of sheet rose steadily to 23,857 cwt in 1844. Exports dropped to 4,412 cwt in 1838, rose to a peak of 8,776 cwt in 1841, and then averaged about 7,700 cwt to 1844. Crown production dropped fairly steadily from 1836 to 97,495 cwt in 1842, then rose to 104,340 cwt in 1844. The full comparison is shown graphically by Figure 4.1 below, which derives from Barker’s Table 2.

It can be seen that total sheet production in 1844 was about 30% that of crown glass, but the removal of the duty in 1845 meant that those glassworks, such as Nailsea, that had developed cylinder glass techniques were now at an advantage. From 1845 there was an upsurge in demand, for a number of reasons that do not need to be enumerated here, but price reduction due to the removal of the duty was certainly a contributory factor. The various authorities agree that the cost of the abolition to the Treasury was in the order of £650, 000 per annum.



**Figure 4.1: Comparison between sheet glass production and that of crown glass**

Window tax was a further complication, but it only applied to private dwellings, apparently, so industrial glazing was excluded. This meant that the new factories and railway stations, for example, were not taxed on their glazing requirements. By the 1840s the minimum number of windows in a dwelling to attract tax was eight, but as the number of homes with more than

eight windows was only 15% of the housing stock, it is likely that by this time the window tax was not having too great an impact.<sup>5</sup>

In very broad terms it appears that the peak in the mid 1830s was due to a building boom, “particularly marked in the Lancashire textile districts”<sup>6</sup>. This was followed by a depression, which as can be seen from Figure 4.1 impacted severely on the crown glass manufacturers, while apparently having little impact on the sheet glass market.

The manufacturers had formed various associations over the years, and, quite naturally, those with the largest stakes in the industry came to dominate. “As far back as 1827 there was an ‘Association of Crown Glass Manufacturers of England and Scotland’.”<sup>7</sup> The result was that as they realised a depression was coming, attempts were made in 1838 and 1839 to regulate crown glass production, as this was where the major growth in the number of new glassworks had been. Similarly, sheet glass production received attention in 1841, and the manufacturers’ association added ‘and Sheet’ between ‘Crown’ and ‘Glass’ in its title in 1846<sup>8</sup>. The details of this regulation are beyond the scope of this study, but are well covered in both Barker and J F Chance, for example.

It is of interest that around the same time, in 1845, in fact, the glass makers, that is the skilled workmen as opposed to the manufacturers, formed the ‘Crown Glass Makers’ Society’, recorded by Barker, p.82, as, “the first trade union in the industry of which we have any evidence.” It also acted as a friendly society for its members.

Both actions were probably as a result of the lifting of the duties, as the resultant drop in prices helped fuel a surge in demand. It is generally agreed that the duty had been at a rate well over twice the cost of production. Additionally it seems that another building boom was occurring post-depression, and some speculative glassworks were created to ride this. Barker, p.99, records James Hartley as noting that there were thirteen or fourteen firms immediately before repeal. These grew to twenty-four by 1846-7. The boom then collapsed, and by 1852 there were ten and by 1856, only seven. By this time, with no import duty, there was severe competition from Belgian imports, and indeed there had already been recruitment from France and Belgium of experienced sheet glass blowers. It seems that some were recruited in the early- to mid- 1830s because of the lack of skilled British blowers, and this continued each time demand increased, as the Europeans were very reluctant to teach the local men, as of course were the local men themselves to train anyone from outside their own circle.

From Mountain, Part 3, Appendix 8, “About 1858 Sheet glass blowers came from France and Belgium to England, and came to Nailsea. This made no small stir but after coming to an understanding, they were allowed to start work with the English men of Nailsea as Sheet glass blowers. As regards their workmanship, it was not up to the standard, of our Nailsea men. They went to live in some cottages near the Works, then called the French Row, and it is so called to the present day. When the war broke out in France they all left to fight for their country.”

The impact of the political and economic climate on the business and its products has been shown, and that last paragraph hints at some of the problems encountered at a personal level. The French and Belgians were brought over at a premium, and it appears that in general were on a better pay rate than their British counterparts. It appears that their working methods and

---

<sup>5</sup> Barker, p.78

<sup>6</sup> *Ibid.*, p.69

<sup>7</sup> Chance , W L, in Chance, J F, p.276

<sup>8</sup> *Ibid.*, p.277

furnace arrangements were different from Britain, as were their terms of engagement at home. There they were apparently engaged for the life of the furnace, which they called a *campaign*.<sup>9</sup> Presumably this was so that they could be laid off during a furnace rebuild. The British workers were usually on a seven-year contract, with a guaranteed minimum wage. This would be down to half pay if work was interrupted through no fault of the worker. There was no accident or sick pay, but we have already seen that the Society could arrange to cover that aspect.<sup>10</sup> While that gave some security against depressed conditions, it also meant that one could not pursue a better offer without the strong possibility of prosecution by the aggrieved employer. Baker indicates that the employers had, in general, renegotiated terms to coincide with the lifting of duty, in anticipation of problems. Even so, in 1848, Lucas Chance had to negotiate a drop in wages with his contracted workers to remain competitive, and foreign workers were being paid off, although some would later be sought as production picked up again.<sup>11</sup>

It was not only the employee who could be prosecuted: J R Lucas was himself fined, as *Felix Farley's Bristol Journal* of Saturday 26<sup>th</sup> December 1789 records, "A case of great importance was on Thursday sennight tried in the Court of Common Pleas before Mr Justice Watson and a special jury. The action was brought by Messrs Elton and Company, glass manufacturers of the city against Mr. J. R. Lucas to recover a compensation in damages for seducing from the plaintiffs' service John Phillips and six other of their covenant servants employed by them in the manufacture of glass. The jury after a trial of eight hours brought in a verdict for the plaintiff worth £100 damages." Lucas presumably kept his workmen, but this is not clear. [However, see the other reference to Elton's in the Introduction, p.5.]

An example of the difficulties that could be encountered is shown by an extract from *The Bristol Mirror* of 26<sup>th</sup> May 1855 (p.5 col. 6):

... "The disastrous consequences resulting from the stoppage at the coal works [five in number] is not confined to the colliers alone; for we regretted to find, on reaching the once flourishing glass-works, now belonging to Messrs White and Co., where more than 100 men and boys were employed, that these were necessarily closed; not from any internal disagreement, but in consequence of the insufficiency of coal to keep the engines in operation. There were only three or four persons engaged in the works to prevent the fires from burning entirely out; as if that were the case, a loss would accrue to the proprietors of several hundred pounds. These works had been partially supplied from Wales and Coalpit Heath; but a rumour was industriously circulated that the trucks sent to Bristol for coals from these depots had returned empty, although it had been stated that a Welsh coal proprietor had offered to supply Messrs White and Co with coals in any quantities."

As a comparison, in February 1836 Coathupe (p.118) recorded 30s. each per four double journeys for eight Nailsea blowers. Eight double journeys (that is, working four double journeys at each of two furnaces) were expected to yield about 4800 50-inch tables (p.121), each weighing about 9 lb. 5 oz. On p.97, Coathupe notes that "7 founds are just a week's work for two furnaces, (making from 4700 to 4800 Tabs.)" Chances' downward negotiation in Birmingham in 1848 was to 25s. for blowers for 1200 tables of 11-12 lb. in weight, but with a 'buy-out' of £2 for each year left to run to anyone cancelling an existing agreement.<sup>12</sup> Presumably the Birmingham men were still getting the house and coal allowances that were

---

<sup>9</sup> Barker, p.83

<sup>10</sup> *Ibid.*, p.92

<sup>11</sup> Chance, J F, p.43

<sup>12</sup> *Ibid.*

additional for the Nailsea men at the earlier date. It certainly applied to Pilkington staff; a blower's rate there was 26s. 0d. for 1200 tables in 1839 and was the same in 1845. The rate for sheet glass blowers was an additional 50% or more over the basic crown blowers' rate.<sup>13</sup>

For a further comparison, Barker, p.92, points out that, "These rates of pay placed the skilled glassmaker in the forefront of the artisan class. Estimates of earnings are hard to arrive at, ...but ... ironfounders, generally agreed to be among the highest paid workpeople at that time, were then earning up to £2 per week ... The general run of skilled craftsmen, such as carpenters, builders, and stonemasons, usually earned round about 30s. 0d." In general these were basic rates. Coathupe refers to 'overjourneys' and 'overwork' and at Pilkingtons it seems to have been 'plus' work. It seems that the pay was at a basic rate for a given rate per week then a piece rate for work over the agreed basic level. This meant that the weekly income could be considerably enhanced at times of increased demand. In addition, as already mentioned, the glassmaker had fuel, (it probably being better to make it a recognised allowance than to tolerate pilfering, with so much about), and a house provided. Furthermore, both J F Chance and Barker mention 'pensioners'.

By mid-1855, Pilkingtons, Chances and Hartleys had already been acting in concert against other companies, and invited Swinburne at South Shields, the Wearmouth Glass Company and Nailsea to join them. "The contributions make it clear that by this time Pilkingtons had caught up with Chances in window glass-making capacity and that the two firms were the leaders of this branch of the industry in Britain. Each of them possessed nine glasshouses, while Hartley had six, Swinburne four, and the Wearmouth and Nailsea companies two each."<sup>14</sup> In the late 1850s, on their own evidence<sup>15</sup>, it is clear that the three principal companies (Pilkingtons, Chances and Hartleys) were benefiting from the continuity of familial capital and management, and were in a position to start dictating to the rest of the Association. By about 1860, between them they were making about 75% of all Britain's window glass. This was especially the case with rolled plate glass, Hartley having established a patent on the process in 1847. It was apparently cheaper to produce, was suitable for industrial applications, and had no particular competition from abroad. It seems that at least one attempt was made to introduce the patented system at Nailsea, which met with rebuffs from the cartel of those three companies. This situation held for the life of the patent, which has not been determined.

Bowen took the lease of Nailsea in 1862, and from his observations on the trade around 1865, which appear in Appendix 2, there were difficulties competing with Belgian imports. Dommett, 1987, quotes a Bristol newspaper of 1868, "The difficulties with which some branches of English trade have to contend when brought in to competition with foreigners have recently been exemplified with reference to a recent contract taken for covering the roof of the new Metropolitan Meat Market. We are informed that the lowest English tender was that of the glassworks at Nailsea near the city which offered to supply the requisite quality of glass at 11½d. per square foot, but a Belgian house obtained the order, their terms being for precisely the same material 4½d. per square foot." Commenting on the cartel, Dommett goes on, "It was reported of Nailsea – 'This firm began to sell rolled plate glass, a branch in which Belgian competition was not so severe, at prices below that of the Association. They gained a considerable number of large orders immediately, including one for 100,000 feet for glazing the roof of London Road Station at Manchester. The Association machinery went in to action, and other manufacturers cut their prices so that they undersold Bowen and Powis.' "

---

<sup>13</sup> Barker, pps.91-92

<sup>14</sup> Barker, p.106

<sup>15</sup> Barker, Chapter 7, The Removal of British Competitors, pps 99-116, and Chance, J F, p76 et seq.

It was this that spelt the end, not only for Bowen, but, in effect for the glassworks at Nailsea, although this was some little time in coming. Mr W Stonier, “of the ledger department at Spon Lane” was put in charge by Chances. [Dommett, 1985, notes that in an item in the *Clevedon Mercury* of 17<sup>th</sup> June 1911, Stonier revealed that Chances did not buy the Nailsea works as a good speculation, but to keep other operators out. Whatever the reason, the works were discovered to be in such a dilapidated condition that a sum of between £30,000 and £40,000 was invested in order to recommence production.”] A new shaft for coal was necessary early in 1871. J F Chance records that, “For the year 1871 there was heavy loss, and although in 1872, with the rise in prices, profit was made, it was decided at the end of the year to suspend manufacture.” He goes on to note the reasons in resolutions of the Board in January and February 1873. The crown of the sheet furnace began to drop very much, so it was taken out of service. Use of the slack [coal] from the old pit had “for some weeks past produced very bad glass, while the new shaft has failed as yet to produce any slack that can be used, ...” Experiments apparently carried out at Nailsea and also at Powells’ bottle works in Bristol, to determine whether the Nailsea slack would be any use for a gas furnace, had unfortunately shown that it would not. With a very large stock of sheet glass at Nailsea to be sold, it was decided to cease production.

Bassett’s plan of 1867 (BRO AC/PL 144) shows that the colliery was abandoned after 31<sup>st</sup> December 1876. It is clear from Chance’s comments, following on from those regarding the glassworks, that the pit had been only moderately successful, and that it was eventually deemed uneconomic to proceed.<sup>16</sup>

We have seen the importance of a ready supply of coal to the glassworks throughout this study. What has not been mentioned is how the transport costs could affect the price. M Thomas states that “coal prices doubled or even trebled if transported more than ten miles.<sup>17</sup>”. No reference for this is given, so the period to which this applied is not known, but it would probably be a reasonable rule of thumb as long as transport relied on horse-drawn vehicles and wage inflation was small. Lucas was paying virtually one third of the pit-head price. Written in 1795, John Billingsley’s *General view of the Agriculture in the County of Somerset* is quoted as rating the Nailsea coal as inferior, on price, to that of the northern parts of the main Somerset coalfield. Nailsea coal fetched 3½d. per bushel at the pit-head, “although ‘one of the works is under contract to serve the glass-houses, some time since erected in the parish of Nailsea, at 1¼d. per bushel.’ The combined production of the Nailsea collieries is given by Billingsley as 2500 bushels daily, and much of this would have found its way in to the local glassworks.”<sup>18</sup> By 1836-7, ‘Brush’ coal was 4d., and ‘Small’ coal was 2d. per bushel, and “Hauling from the pit 1/- for 9 Quarters.”<sup>19</sup> It is fairly obvious therefore that to site the works on the coalfield was very attractive, and the possibility of a canal for exporting the glass would have been very attractive as well. Not only was waterborne transport more suited to a fragile commodity, but one man and a horse could move much heavier loads by water than by the roads of the eighteenth and nineteenth centuries until the turnpike system and metalled roads, followed by railways, became widespread, and reduced their viability. As an example, canalisation of the Avon to Bath made it “profitable to bring coal from as far away as South Wales and Shropshire up to Bath in the 1730s, ...”<sup>20</sup>

---

<sup>16</sup> Chance, J F, pps.106-108

<sup>17</sup> Thomas, M, 1987, pps.6-7

<sup>18</sup> Buchanan and Cossons, pps.83-84

<sup>19</sup> Coathupe, p.33

<sup>20</sup> Buchanan and Cossons, p.185

## 2. SOCIAL BACKGROUND

One tends to associate benevolent and/or enlightened employers of that period with the great Quaker families, such as the Frys, Cadburys, and so on, but nowhere has that particular connection been mentioned, although there does seem to have been a tendency to Non-conformity. At Nailsea on the 1870 plan, {58} was the ‘Old chapel (used for Carpenters [*sic*] room)’, and there was a butcher’s shop on the 1830s plan. This sort of facility, together with the housing, would also be required at Nailsea, because the glassworks were at that time sited some way to the east of the centre of the (then) village. It seems that the process was continuous, although the blowing was not, with the pots continually being emptied then refilled, the batch melting, and the metal becoming ready to work – a *found*. A *journey* from the French ‘*journée*’ was the effective working time to empty the pots, typically fourteen to sixteen hours.<sup>21</sup> This was not necessarily on a regular cycle, so the glassmakers could expect to be called in to work just before the metal became workable, so that there was no pause in production. It therefore made sense to have them close at hand. With time, as the pots got bigger the cycle would probably be longer than in the early days when the pots were smaller.

At Nailsea additional housing was provided as the works expanded. Initially this was a terrace of houses across the High Street from the works, and then a further terrace, ‘French Rank’, later ‘French Row’ in the northern part of the glassworks holding. There is a suggestion that this was built for the French workers, but no evidence has been found to substantiate this. (Greenhill, B J, a well-known local historian, in a letter to the editor of a local paper, 15.5.1959 – transcript in Nailsea Library.) It may well be, of course, that any foreign names might well have been anglicised, either by the incomers themselves, or by the census enumerator. [Probably because of literacy problems, it is understood that the earlier census records were filled in by the enumerator at the door, as it were, rather than the modern method of data collection where the householder completes the form.]

From a summary extract from the 1851 returns, in Folder B for SMR 2397, the manager, Richard Sims, and his wife were living in Chappel Alley [*sic*]. It was presumably some time later that a house for the manager, approached by a long drive from the north, was built at the east end of the original row of terraced houses just to the north of the works (see the 1870 plan). This house now forms the core of the Masonic Lodge in Nailsea, having been recorded as a ‘Drill Hall’ on the 1903 1:2500 Ordnance Survey map, so is one of the few surviving buildings associated with the works. The summary has an end-note which states, ‘Parish of Nailsea, comprising ‘Christchurch which lies to the North of the main road leading from ? to the West End as far as Mr Carpenters (including Black Road, Jacklands, Chappel Alley, the ?, the Friendship Inn, the new and French Glass Ranks House).’ Total inhabitants =606 (Females 296, Males 310). Out of 310 male inhabitants, 32 worked at the Glass-works on 30<sup>th</sup> March 1851.’ [The two ‘?’ are taken to mean that the person making the extract was unable to read the original text for some reason.] Closer examination shows 34, or even 35, and yet another glass blower was noted by the present writer, but, possibly through being a lodger, was apparently missed by the compiler of the extract, and as his age was not noted he has been omitted from Figure 4.2 below. The other additional one was a glazier, who might have worked on leaded glass pieces. Furthermore as it appears that other tradesmen, and possibly some labourers, did not specifically state a connection with the works it is difficult to extrapolate the size of the workforce from the census returns. Also, the description of the area covered implies that the analysis of the 1851 returns was not from the returns for the whole parish of Nailsea, but only from a northern part, presumably where more glassworkers were expected.

---

<sup>21</sup> Parkin, pps. 20-25

The original terrace in French Row was demolished in the period between 1956 and 1961, on map evidence (See Part 1) and replaced by small blocks of flats.

No particular attempt has been made in this study to track changes in road or street names unless they relate directly to the glassworks' site. It is apparent that changes took place over time and that there were inconsistencies between one map or plan and the next available.

A quick check on the Census Returns in the SRO showed no reference to French Rank/Row in 1841. Table 4.1 (below) shows a summarised and abbreviated version of the 1851 – 1871 returns.

**Table 4.1 - Summary of 1841-71 Census Returns for French Rank/Row, Nailsea**

House No.	1851 (French Rank)	1861 (French Row)	1871
63			Sims, Glass maker
64			Tulip, glass maker
65			(Grandson?) Glass blower
66			Knight, Glass maker
67			Harwood, Labourer
68		Sims, Pensioner	Neenan (Ireland), son is Glass maker
69		Robert Fairless (S Shields) Glass maker	Sprigg, Founder glassmaker, son is Glass maker
70		James Sims, Glass maker	Harding, son is Glass maker
71	Isaac Brown, Gardener	Richard Dean, Labourer	
72	Wm. Henderson, Glass maker (Note 2)	Wm Sprig	
73	Boulton, Labourer	Hannah Barnett, Son, Ed Barnett, Glass maker	
74	Wm. Manfield, Glasshouse labourer	Wm. Cox, Labourer	
75	G Brown agricultural Labourer J Barnett, lodger, Glass maker		
76	Harriet Westbury H Gray, lodger, Glass cutter		
77	J Barnett, Glasshouse labourer		

**Notes to Table 4.1:**

Note 1: The reasons for the number changes are not known, although it is believed that (house) numbering was more informal at that time and was allocated more by the enumerator than by the more rigid system of today.

Note 2: The Hendersons had six children, one born in Newcastle-upon-Tyne, two in West Bromwich, and three in St Helens respectively.

Note 3: Not surprisingly there were no glassmakers recorded in the 1881 census for 'French Rank, off The Drove', but an Elizabeth Sims, Widow was recorded at No. 70, but it is a matter of speculation whether she was of the same Sims family that was recorded on the previous two events.

While considering the census returns, it may be of interest to note that in 1861 for ‘Old Rank’ (‘Back Road’ in 1830s, and believed to be in what is now ‘Woodview Terrace’) there were many glass workers. A small selection was made to show the disparate backgrounds:

John Malcolm,	Glass blower	Dumbarton
Richard Wilson	Glass blower	St Helens
Hugh Culshaw	Glass flattener	Stockport
John Wright	Glass flattener	Shrewsbury
James M <sup>c</sup> Laughlin	Glass maker	Ireland

It is apparent that the glass working population, even from this small sample, was far from static.

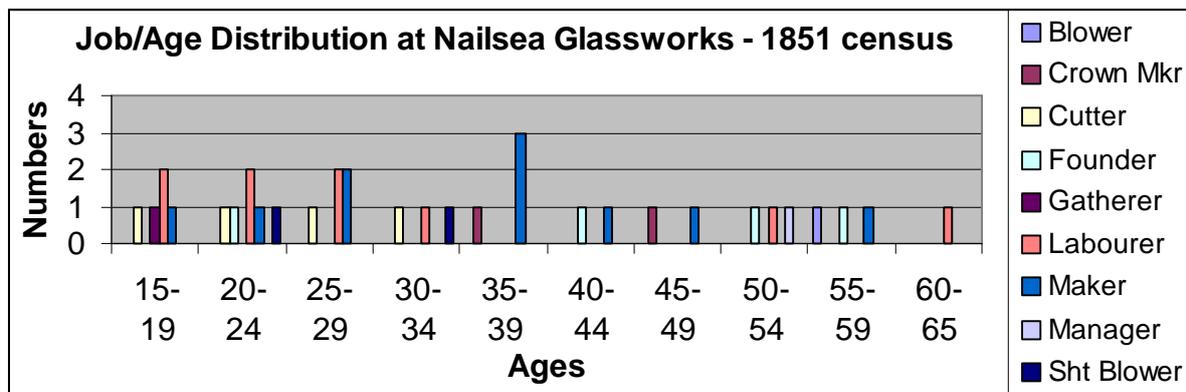


Figure 4.2: Job/Age Distribution - 1851 census

The initial impact of this influx on an agricultural community, ruled very largely, apart from the mining community, by the rhythms of nature, and probably without a great deal of experience beyond the village, by and large, was probably less than it might have been, under different circumstances. A modern parallel might be American troops in camp in the UK during World War II in 1944, say. The glassworkers were on the extreme easterly edge of the village, in their own housing near the works, working long hours in response to the needs of the product. They would, in general, be enjoying a better standard of living in one sense, in view of their higher wages, though their houses were regarded as pretty crowded, and probably difficult to keep clean alongside the works. An agricultural labourer was only on about 30s. 0d. a week a year or so before WW II.

With time it can be imagined that the superior spending power of the unmarried men growing up in the glassmaking community would inevitably be an attraction to young women from the village, and it might be suspected that from time to time there were tensions between the two parts of the village, as a result, but there does not seem to have been anything recorded. However, it is clear that relationships were not entirely harmonious, because in the Greenhill papers in Nailsea Library are records of appeals against the assessments on the company for its share of the Poor Rate by Lucas, Chance, Homer and Coathupe at Taunton Sessions on October 7<sup>th</sup> 1806 and again at Bridgwater Sessions on July 14<sup>th</sup> 1807. In both cases the appeal was dismissed. The inference is that the company felt that as it was contributing to employment and bringing money and trade in to the community, and its workers were not so likely to become a drain on the parish, then it should not have to bear the full rate. The justices obviously thought otherwise. This alone would be an interesting point for further research.

Once the hostility of the vestry to the expansion of the glassworks was past, it is very likely that the two communities would have tended to come together from the very necessities of living.

For example the Nailsea Heath brewery was established to the north of the Friendship Inn, and certainly seems to be outlined on the 1840 Tithe map. It can be imagined that it came there almost as an adjunct to the glassworks, in view of the recognised thirst of the glass workers, but also in the 19<sup>th</sup> century ale was still generally a safer drink than water. The glassworks meant a significant increase in the population of Nailsea, so there was not only a greater demand for water, but there would be increased risk of pollution of groundwater from careless disposal of sewage as well as waste from the works.

In addition, skills already no doubt existing within the original community such as smiths, farriers, joiners and so on would have found a further outlet within the glassworks, and this would surely have helped with integration.

It is apparent that apprentices were recruited, as there is a reference to a notice in *Bonner and Middleton's Bristol Journal* of 21<sup>st</sup> August 1790, about three who had absconded from Stanton Wick. In the 'Greenhill' papers at Nailsea Library is an apprentice Indenture dated 10<sup>th</sup> May, 1845, in which "John Barnett, son of William Barnett, Glass Maker of Nailsea" is indentured apprentice to "Messrs Coathupes & Co., Glass Manufacturers" and promises that he "shall faithfully serve their secrets", for twelve shillings per week. [By 1851, according to an extract from the census mentioned above, there is a John Barnett, recorded, a glass maker, aged 20, so is a likely candidate on age, who with his Tickenham born wife is lodging with a labourer, George Brown, and his family. George Brown, aged 30, was born in Tickenham, which is only a mile or so from Nailsea, as was Louisa Brown, aged 25, (recorded as a visitor). It looks as if John Barnett and his wife were possibly fairly recently married and so lodging with a family known to his wife. Space might be at a premium, but a rent from a pair of lodgers would presumably be a welcome augmentation to a labourer's income. In 1851 a William Barnett (56), born in Nailsea, had his wife, two unmarried daughters and a grandson living with him. There is no certainty of a connection; there were other Barnetts connected with the works, all of whom were born in Nailsea, so it would appear that there had possibly been some local recruitment in the past.] It has not been determined to what extent apprentices were recruited from outside the existing workforce families.

From what has been seen it is very likely that for the specifically glass trades there was a considerable degree of nepotism, but that there would have been scope from the wider community for other trades and, of course, labourers. It could be that if, for example the enumerator merely asked their occupation, rather than 'what' and 'where', persons might not also state that they were employed at the glassworks.

Much quoted references, that again are only snapshots, come from Martha Moore, who with her sister Hannah were committed evangelists, with a particular interest in welfare and schools. They had apparently persuaded the vestry to found a school on Hannah's principles in 1791. Apparently, though, she believed "children should learn to read, but not write."<sup>22</sup> In 1792 Martha wrote in her *Mendip Annals*, "We now made our appearance for the first time among the glasshouse people, and entered nineteen houses in a row, little hovels containing in all 200 people ... Both sexes and all ages herded together, and voluptuous beyond belief. The work of a glasshouse is an irregular thing, uncertain whether by day or night, not only infringing upon man's rest, but constantly intruding upon the privileges of the Sabbath.

The wages high, the eating and drinking luxurious – the body scarcely covered, but fed with dainties [*sic*] of a shameful description. The high buildings of the glasshouses ranged before the doors of these cottages – the great furnaces roaring – the swearing, eating and drinking of

---

<sup>22</sup> Morgan, p.448

these half-dressed, black looking beings gave it a most infernal and horrible appearance. One, if not two, joints of the finest meat were roasting in each of these little hot kitchens, pots of ale standing about, and plenty of early delicate looking vegetables ... We were in our usual luck respecting personal civility which we received even from the worst of these creatures, some welcoming us to 'Botany Bay', others to 'Little Hell' as they themselves shockingly called it. We talked to them a great deal, and indeed they all listened, and some with great, and I may add with truth, delighted attention."

When they visited again in 1793, she wrote, "From the cottages which exhibited the usual scene of filth, feasting and gross ignorance, we proceeded to enter the very glass-houses amidst black Cyclopean figures, and flaming horrible fires. However we were again agreeably surprised as well as affected, for everyone of these dismal looking beings laid down their tools, and immediately surrounded us speaking in the civillest [*sic*] terms, calling all the great boys out of their black holes, and using really persuasive language, to induce them to listen to us, and do what we wished ..."<sup>23</sup>

As an example of how integrated the company had become, not only in the community, but also in the hinterland, and of the problems that might arise, the following entry in *Felix Farley's Bristol Journal* for 13th May 1837 is of interest, headed "NAILSEA GLASS WORKS":

"LUCAS, COATHUPES and Co. having experienced great inconvenience from their Carters taking up delivering parcels on the road between Bristol and Nailsea, and in order to prevent annoyance for the future, they earnestly desire that no person shall send any parcels or packages by the drivers of their teams. – May 11<sup>th</sup> 1837."

The next episode from *Felix Farley's Bristol Journal* of 18th July 1840 shows that even if the problem had been solved before it had come up again. Under the same heading:

"LUCAS, COATHUPES and Co., having experienced great Inconvenience, Vexation and Loss, from their Carters taking up and delivering Parcels on the Road between Bristol and Nailsea, in order to prevent annoyance, they earnestly desire that no Person will send any Parcels or Packages by the Drivers of their Teams."

P. S. There are the following Carriers between Bristol and Nailsea: - Robert Broom, from Red Lion, St. Phillips and Mrs Baker, Angel; Wm. Jones and Wm. Watts, Cups and Salmon; all in Redcliff Street; and Thomas Culliford, Hope and Anchor, Redcliff Hill."

Obviously there was not only the problem of taking work away from the regular carriers, that might have repercussions at some time. There was also the problem that the Company's consignments of glass were taking longer to reach Bristol than they should, and stopping and starting was probably not conducive to the delivery of an intact consignment.

The simple statement was made in the Introduction to this Study that, "**1861**: White could not make the works pay and they were shut down for a while." What was not explored there, and presumably there was a combination of circumstances that gave White problems, and what was not immediately apparent from the statement, was the overall effect on the workforce.

---

<sup>23</sup> These extracts as reproduced in Dommett, 1985. His following comments are instructive.

From an unattributed, but dated Jan .18.1862, copy of a newspaper cutting in the 'Scotch Horn' display at Nailsea, we read, “

### **GREAT DISTRESS**

**A**MONG THE GLASSMAKERS AT CHRIST CHURCH, NAILSEA, Somersetshire. The Rev. Ricketts Bayley thankfully acknowledges the receipt of the following liberal contributions, but help will be needed for at least six or seven weeks. He regrets to say the funds already entrusted to his care, though liberal, are now all but exhausted; and, therefore, he would entreat those who have not yet kindly contributed, to do so without delay, as, unless he has considerable further assistance, he will very shortly be obliged to discontinue giving relief.”

The item continues by giving details of the Rev. Bayley's bank accounts and states that the, “Amount already advertised .. ..£299 18 0”

“Contributions received since” amounted to a further £18 5s. 6d., and included £3 and £5 respectively from gentry at Blaise Castle and Westbury-on-Trym, ten shillings from a clergyman in Bedminster, and £0 4s. 6d from “Three Friends”.

From the same source there is a further unidentified cutting, dated March 1862, “We are gratified at being able to state that the commendable anxiety and labour of love so recently exhibited by the Rev. W. H. Ricketts Bayley, on behalf of the distressed glass makers of Nailsea, is now terminated in the re-opening this week of the works, and we are requested by the rev. gentleman to record his grateful acknowledgements for the liberal help so promptly tendered to his poor parishioners during the five long months of destitution through which they have been called to pass.”

Then, similarly, in Feb. 1863, “NAILSEA. – We are glad to find the glass-works of Messrs. Bowen and Co. are in a flourishing condition, and all the glass-workers in the neighbourhood have employment. The sad condition of the *employés* about 12 months since is no doubt fresh in the recollection of our readers and the present cheering intelligence is most satisfactory.”

For a later very extensive review, there is the evidence of Mr. J. E. White (presumably a lawyer, by his address of Lincoln's Inn) dated 29<sup>th</sup> April 1865, in the form of a *Report upon the Glass Manufacture* to Her Majesty's Commissioners sitting on the Children's Employment Commission. While he is specifically examining the working conditions of children he necessarily describes the processes and practices of the glassmaking industry at large. In his preamble he comments on the great importance of the industry, “not only in its commercial value, but also as regards the number of persons employed in it, and the circumstances of employment.” His remit covered the United Kingdom, but excluded Lancashire from his survey, “the glassworks in which fell under the local enquiry of another of the Assistant Commissioners, and for a like reason I excepted a few of the works in Yorkshire.” [The copy presently available is in the SMR 2397 papers (Item No. 54), and is itself obviously a photocopied extract.] Some fairly full extracts from his observations are given below, and they give a well-informed view of working conditions as they affected the employment of children, chiefly boys, but inferences can be drawn about conditions in general, so there is no apology for their length:

p.182 “17. The manufacture of crown glass has greatly declined, ... but that of sheet glass, which serves the same purpose, has far more than proportionately increased. ...”

From Chapter “I – AGE AT WHICH CHILDREN AND YOUNG PERSONS ARE EMPLOYED”: p.183  
“23. The age at which the youngest children usually enter glass works is from 9 to 11, but this varies much in different districts and kinds of work. Many go not older than 9. In some cases boys have gone into glass houses younger, in a few as young as 7, but apparently not so young of late as formerly. ...”

“24. The manager of some Scotch bottle works, who has had a long and wide experience in English glass districts, states his opinion that, in glass work, as in manufactures generally, children are sent to work younger and get to men’s work sooner in England than in either of the other two kingdoms, being able to do the work, though not properly old enough for it, “because their parents make them.” (No. 202)”

Under Chapter “II – SEX. NUMBERS OF GIRLS AND WOMEN”: p.183. “25. Females are not employed in glass ‘making’, though a few are found engaged in odd ways in connexion [*sic*] with that department. ...” He observes that there is a larger proportion of females in plate glass works and in sheet glass works where polishing is employed.

Chapter “III – NUMBER OF CHILDREN AND YOUNG PERSONS EMPLOYED”: p.183. “28. Returns which have been furnished to me from forty-five glass manufactories of different kinds and sizes, including the three plate glass works and four of the five crown and sheet glass works not in Lancashire, and twenty-five flint and ten bottle glass works in the chief seats of those manufactures, and one or two miscellaneous kinds of glass work, ...” Taking only the crown and sheet glass figures, of ‘Children’ there are 112 males and no females employed, and of ‘Young Persons’, 432 are male and 16 are female. His total figures are 378 children and 1430 young persons. These cover Plate glass, Crown and sheet glass, Flint glass, Bottle glass, and Stained and other glass.

In Chapter “IV – HIRING OF CHILDREN AND YOUNG PERSONS”, p.185-6, it is clear that the mode of employment depends on local practice, but “boys who ... merely work as helpers ... are paid weekly wages in most cases by the manufacturer, in some by the men under whom they work.” “In all the plate glass works boys appear to get regular wages. The girls who smooth usually work as helpers to some woman, and receive such part of the woman’s wages as the latter allows ...”

Under Chapter “V – STATE OF PLACE OF WORK”, pps.186-188, he found that there was a lot of variation between glasshouses from what he expected in terms of both light and heat, and also in general cleanliness. In para. 42 he says, “The importance of this cleanliness of the workplace, especially with regard to the general practice of taking meals in it, is strikingly illustrated by a medical gentleman, who has known of “one or two narrow escapes from arsenical poisoning from the food being dropped on the floor when arsenic is put in to the pots.” ([Witness] No. 232)” He continues, pointing out that arsenic “is one of the ingredients of bottle glass, and is used in large quantities, ...” Also, “Some arsenic is used , but I am not aware to what extent, in glass of other kinds.” In 1837, Coathupe made four references to arsenic in his notebook [pps. 24, 92, 97, 126, Part 3, Appendix 1], and the works were then using 1.5 cwt [76.27 kg] per week. White correctly observes that, “It is plain that a cool and well ventilated glass house greatly increases the effective powers of the workers.” (Para. 52). However, at the worse end the conditions were bad. In para. 46 he describes, “The hottest posts, so far as I have observed, are those of pushers” [who from para. 75 are described as “sliding an iron door back over the mouth of the furnace after each piece is drawn out. The

disc in being carried away passes so close, within, say, a couple of feet of the boy, shut in a corner of the highly heated brickwork outside the furnace, that he turns his face away to avoid the heat of the glass.”] in Crown glass houses, and of shovel-holders in sheet glass houses, work done by the youngest boys, ...” “The heat in which the little shovel-holders stand is very great; at first I could hardly bear to go up and stand in their place. In one case where I tried the heat by my thermometer, held in the position of the boy’s head, it rose to upwards of 130°. While I was standing near for this purpose my hat, both crown and brim, melted so out of shape that it was unfit to wear till restored by a hatter.”

“VI – NATURE OF EMPLOYMENT”, pps. 188-192, again reveals his potential as a Work Study practitioner, well before it became a recognised profession. He measured the shortest distance from chair to kiln, to determine the distance travelled by a ‘taker-in’ in a journey, which of course depends on the number of articles produced, but which could be an average of between 15 to 16 miles: this figure would be unusual in a crown or sheet glass house. He comments that, “The general work of the boys is a saving of time or strength to the men ...” (Para. 60). Para. 74 states “In sheet glass houses, boys, all however necessarily of good size, and over 13, push cylinders in to the annealing kilns, work not specially warm, but requiring strength. If, as a manufacturer predicts, foreign competition compels English sheet glass manufacturers to make lighter glass for the sake of saving by employing younger labour, this is probably one of the departments in which the age of the workers will be reduced.” Shovel-holders are defined in para. 75. They “hold the shovel before the mouths of the furnace to screen the face and hands of the gatherers, usually men or big youths, ...”



**Figure 4.3: Interior of Powell’s Bottle Works, Bristol, 1846**

© Somerset County Council - reproduced with permission from Somerset County Archivist

Para. 80: “A sheet glass house ‘spare boy’ whom I found carrying cylinders of glass, each weighing 19 lbs., two at a time, had to carry 200 some distance out in to a separate building.”

“Much of the employment in stained glass manufactories, so far as I have seen or was informed, is of a higher and artistic kind, performed by a superior class of persons, none being

children and but a few females or young persons, and consisting in drawing designs or paintings, or painting them on glass. Other part of the work consists of burning in the colours at furnaces, work done by men, and cutting out glass and fitting it together, and soldering in lead work frames, called glazing, in which I saw a few boys employed.” (Para. 86).

Chapter VII covers “HOURS OF WORK”. At this time the hours of work are still extremely variable across the whole spectrum of glass manufacture, but they all have in common the fact that they have to work until the pots are empty, so larger pots would mean longer journeys. As White quite rightly observes, “Only a limited number of glass makers can work properly at the same part of a furnace.” (Para. 88). The manufacturers came to recognise that a break was essential, and in general, after a late finish on Saturday night, in the works such as Nailsea, work would generally not start until midnight on Sunday or in the early hours of Monday morning. Sunday is therefore used by the founders to recharge the pots and prepare the metal. On average this took 28 to 32 hours. The working journeys for sheet glass are “from 8 or 9 to 10 or 11 hours; in crown houses an hour or two longer.” (Para. 91). After describing how boys could be expected to work what we would now generally regard as antisocial and in some cases dangerously extreme hours, he gives the usual hours for day workers as 6 a.m. to 6 p.m., but overtime could be required under certain circumstances.

“NIGHT WORK” is covered in Chapter VIII, but was also pretty well covered in the course of the previous chapter. This is followed by “IX – MEAL HOURS”, p.196. These were very variable, sometimes virtually non-existent. In Para. 125 White comments that, “glass house boys, undergoing such labour as many of them do, for their own well-being imperatively require more or longer intervals in the course of their work than many get.” He recognises in a subsequent paragraph that as long as the length of journey was the governing factor it would be difficult to legislate for fixed mealtimes in relation to the clock.

It is apparent from “X – HOLIDAYS”, p.197, that these were only the hours when one was not working. There does not seem to have been an annual works holiday in any branch of glass manufacturing.

White included a Chapter “XI – TREATMENT”, pps. 197-198, which obviously pained him, but in a moral sense, rather than the physical which seemed to be the lot of a significant number of boys. He writes, “131. Till I had visited a number of works, chiefly flint glass, I had hoped that it was not necessary to give attention to such a point. I was led to alter my mind. I would gladly pass over the painful results brought out, did I feel that I could properly do so.” It is clear that while some might be regarded as the rough and tumble of a robust industrial environment, and seen by the men as part of the growing-up process because they were treated that way themselves when they were young, there was none-the-less what was regarded by White as gratuitous violence towards some boys. He found this very difficult to understand, in view of the real help the boys generally provided. In addition, the abuse was verbal as well as physical. “The kicks and blows inflicted by men on the young helpers, who are so useful to them, are hard enough, but the curses and bad language, which cause no bodily pain indeed, but without doubt harden and embitter the young mind, are probably, at least by the better class of boys, dreaded as much, and in their lasting effects must be worse. Two or three boys have spoken to me with horror of the language used to and around them.” (Para. 132). It would appear that he was told that the position in respect of abuse had improved somewhat in recent years, but it is clear that he was not entirely convinced that this was universally the case. He writes of managers being sure that this would not happen in their works, but took evidence to the contrary in at least one case, and was convinced that where it did not occur was almost entirely due to an effective management which was determined that it should not happen. He

also expressed surprise at the apparent indifference displayed by “official persons and others not engaged in the manufacture who have had occasional cases of ill-usage come under their notice, to this question.” (Para. 135).

He addressed “ACCIDENTS” in Chapter XII, pps. 198-199, and was, in general, surprised that these were not more frequent and more serious. However in one instance he suggested that guard-rails could be installed, with some benefit, to keep passing workers clear of working machinery.

“WAGES” were the subject of Chapter XIII, p.199, in which he states that, “In the lowest stages of glass house work the lowest wages paid to boys, including the over work, or excess of the actual over the nominal week, usual in many, are about 5s., sometimes 1s. or so less.” He does not seem to have definitive figures for crown and sheet glass works, but does indicate that in the most straitened families the boys would get very little for themselves, and there is a suggestion that it often goes on drink for the head of the family. In one sad incident that he recorded a boy was allowed by his parents 6d. a week from his 10s. or 11s. per week. He had 17s. saved when his little sister died and he had to draw it out to pay for her funeral, because his parents could not. As White observes, “Indeed, in too many cases, the use made of the very high wages is very indifferent.”

His Chapter XIV, pps. 199-201 covers “INFLUENCE OF EMPLOYMENT ON PHYSICAL CONDITION”, and is an interesting insight not only in to the attitudes of both men and managers, but also in to White’s analytical mind. He states that “the mass of employers of any importance,” and “many of the men whom I have asked,” share the opinion that glass house work was healthy, despite all the circumstances mitigating against that have already been mentioned, provided the men are temperate. Furthermore there was an element of medical concurrence with that view. He acknowledges that the heat and exhaustion makes being temperate difficult, and “intemperance is agreed to be still very general, though much diminished in many cases of late.”

Para. 148, p.200, “The glare and heat of the furnaces affect the eyesight of those who have to stare in to them to watch their work, ...”

In subsequent paragraphs he discussed the chest problems experienced by some men, and their fainting in the heat, “But most of the injury is attributed to intemperance and careless habits.” The boys also suffer from heat and exhaustion, as well as chills and headaches. “The general appearance of boys who have been any length of time in a glass house is, as a rule, decidedly unfavourable. Their complexion is usually pale and unhealthy, and the bodies of a great number are slight and small for their age.” He goes on to give examples of physical difficulties experienced by boys.

He then makes the point in para. 155 that the present glass workers probably are the healthiest and strongest, almost through a process of natural selection. He goes on to discuss the fact that there is a surplus of boys in the industry at any one time, and what is the likely fate of those for whom promotion is not an option, for various reasons. The employers felt that night work was not injurious, but medical opinion was forming up against this, and it had also already been decided that a ration of daylight was beneficial. “On the whole there is no clearly marked class of serious disease generally agreed to prevail amongst glass makers, ...” (para. 160, p.201).

The “MORAL CONDITION” is examined in Chapter XV, and largely hinges round the difficulties of getting a conventional education when working irregular hours, but both employers and men seem to have made numerous attempts to change this situation. The level of illiteracy is generally deplored. As observed above there tended to be something of a ghetto mentality

causing social separation, and the problems of alcoholism, but despite this it is evident that there were men who tried to improve themselves and their families, and sometimes reaped a benefit. From J F Chance it appears that there they were very successful. In October 1845, eleven years after the idea had been first mooted, the school at Chances Brothers was ready for opening.<sup>24</sup> It is obvious that at Spon Lane there was a strong will from the employers to make it succeed. The principal cause of delay was the differing religious views of the partners.

White's "XVI - GENERAL REMARKS" summarise the situation, and amplify, and to a certain extent justify, some of the points made in the body of the report. In this chapter he makes a point about crown and sheet glass houses that is interesting in the light of Coathupe's notes. White states, "enough time has been gained by shortening the founding process, by means of improvements consequent upon the removal of the glass duty, to increase the number of journeys to four in a week, instead of three as formerly. It is stated that such a further saving of time as would allow of making six journeys a week is an object constantly aimed at, but of which no prospect is at present entertained." Coathupe, p.97 says "7 founds are just a week's work for two furnaces," "when the men were working double work. i.e. 4800 tables per week." (p.91), while on p.121 referring again to 4800 tables he equates that to "8 double journeys". [It is feared that these figures have not been entirely reconciled in the mind of the present writer, but it looks on the face of it as if the Nailsea works was maybe running very effectively in 1837.]

White also took evidence from management and workers, and included these in his report, so we have his comments on "The Nailsea Sheet Glass Works", together with the evidence of Mr Bowen, and two boys, John Urch and William Day, both aged 15. These are reproduced in Appendix 2.

In this statement, Bowen is very critical of the situation regarding schools, but Dommett, 1987, considers that he was "far from accurate in this, for although it cannot be denied that a proportion of children were as described, analysis of the 1851 Census shows that education was not neglected. In that year twelve teachers were teaching children ranging in age from four to seventeen." He summarises the tabulated results as follows, "from this it can be seen that the majority of the children were being taught (or were being claimed to be) by the age of five, that less than one third were receiving no education, and for most of them employment had started by the age of 13 for boys and 16 for girls – the latter having ceased education at 13 and no doubt having had to work in the home in the interim. ... The largely Nonconformist working population appear to have ignored the National Society school set up beside the new Anglican Christ Church in preference for self-help groups employing their own teachers. Following in this tradition the Nailsea Mechanics Institution of Mutual Improvement Society had been established in 1845. Not to be outdone the Anglicans in 1856 built Nailsea Library and Reading Room alongside the School and by 1858 it possessed over 400 volumes." [In the SMR 2397 Folder B, under "Information from Greenhill Collection", there is a manuscript note which has not been authenticated that says, "New school opened at Christ Church (now 4 Oaks Infant School). Reginald Bean (Lucas' son-in-law) gave gift of land & school buildings. MT"]

From the census returns of 1861, White gives the total of males of all ages in employment in the industry in England and Wales as 13809, and similarly the females employed as 1237.

These figures may be compared with those following below, as later still, when the glassworks were in fact closed, G Phillips Bevan, publishing in 1876, but using 1871 data, has an

---

<sup>24</sup> Chance, J F p.222 et seq.

interesting description of the conditions of work, mortality rates and pay rates, although he does not give a pay rate for blowers.

Some of his comments are worth reproducing:

p.171 “The glass industry is of great numerical and commercial importance, employing (1871) 18,344 males and 1737 females. The ages of the former are given as follows:

Age	5 -	10 -	15 -	20 -	25 -	35 -	45 -	55 -	65 -	75(+)
No.	6	1646	3392	2959	4338	2890	1777	950	327	59

By which the trade seems to be one of early life.”

The above obviously comes from the 1871 Census (Appendix A to Report, Table 101, for England and Wales – source: Office for National Statistics). From the same report, Table 102 gives the corresponding female figures, again for England and Wales:

Age	5 -	10 -	15 -	20 -	25 -	35 -	45 -	55 -	65 -	75(+)
No.	1	63	626	399	272	174	130	58	10	4

On a simple comparison, it appears that the employment rate, as a percentage of the total employed for females is significantly higher than for males in the 5-, 15- and 20- age ranges. Otherwise male employment is significantly higher. No reasons are given, but beyond the older age group a possibility might be due to bringing up children, or a higher mortality rate.

p.171 The table of the Factory Returns of 1871 shows the number and locality of glass works. None are given for Bristol or Gloucestershire, and only one for Somerset, which is presumably Nailsea. It employed no children, 70 males up to the age of 18, 243 males above 18, and 6 females, giving a total of 319. This presumably would include staff at St Nicholas Street. By comparison, for the whole of the British Isles, there were 240 works, employing in total 46 children, 5,592 males up to the age of 18, 13,680 males above 18, and 2,116 females, giving a grand total of 21,434. This gives an average number per works of just over 89. On this basis it looks as if Nailsea was seriously over-manned, but this is difficult to confirm. It is obvious that all glassworks have been lumped together, whether they were small specialist producers, or large producers for a mass market. On the one hand 9 works in Northumberland averaged 47 employees and 9 in Surrey and 8 in Worcester both averaged around 25, while in Durham the average of 24 works was 153, and in Lancaster it was an average of 164 for 37 works. Certainly looking at the staff lists for Pilkington in 1846, they were employing something in the order of 440 staff, and there were significant numbers of auxiliary trades.<sup>25</sup>

p.176 “The operation of ‘blowing’ is said to develop afflictions of the chest, and, from the constant exertion, the muscles of the cheeks sometimes become strained and relaxed, so that the cheeks, during the blowing, swell out like great balls. [Interestingly this is almost verbatim from White, para. 153.] On the other hand, exhaustion is partly made up by complete rest on Saturdays and Sundays, and not unfrequently [*sic*] on Mondays and Fridays also, ...”

p.177 “Few trades required supervision more than that of glass making, and it is now under the provisions of the Factory Extension Act of 1867, which provides that no boy under the age of twelve, and no female, shall be employed in any part of a glass factory in which the melting or annealing of glass is carried on, and also that no child, young person, or woman shall be allowed to take his or her meals in any part of the factory where the materials are mixed, ...”

---

<sup>25</sup> Barker, Appendix 1, pps. 427-436

p.177 “From the nature of the trade, night-work is a necessity, ... The tables of the Registrar-General show the number of deaths in 1871 to have been 299, viz.:

Age	5 -	10 -	15 -	20 -	25 -	35 -	45 -	55 -	65 -	75
No.	0	1	10	23	56	45	49	54	46	15

p.178 “Compared with all ages, the ratio of mortality is:

Age	15 -	20 -	25 -	35 -	45 -	55 -	65 -	75
Glass	.298	.670	1.180	1.527	2.160	4.467	12.395	28.902
All ages.	.632	.859	.985	1.305	1.853	3.215	6.676	16.584

[How the above ‘Ratio of Mortality’ was calculated is not known, but the apparent inference is again that glass making was not conducive to longevity, or that the figures are skewed because for whatever reason people were tending to move out of the trade from an age of 35 onwards.]

In an attempt to understand the figures the Registrar-General’s office was contacted, and the matter was passed to the Office for National Statistics. They confirmed the numbers in employment in glassmaking (in England and Wales) as 18344 males and 1737 females in 1871. This showed an increase from 14046 and 1237 respectively in 1861. However they were unable to substantiate the above ratios of mortality, which are now defined by the Office of National Statistics, for the glass industry, as:  $\frac{\text{Deaths in glass industry} \times 100}{\text{Number employed in glass}}$ .

For the population at large, the mortality rate is similarly defined as:

$$\frac{\text{Total number of Deaths in England and Wales} \times 100}{\text{Total population of England and Wales}}$$

Using Bevan’s table of deaths in the glass industry, as quoted above (assuming it applies, as his other figures, to England and Wales), and recalculating on the present definition and using the total population for all ages as the denominator in each case, we get Ratios of Mortality as follows:

Age	10-	15 -	20 -	25 -	35 -	45 -	55 -	65 -	75
Glass	0.005	0.050	0.115	0.279	0.224	0.244	0.269	0.229	0.075
Total population.	0.048	0.063	0.077	0.153	0.151	0.158	0.184	0.215	0.215

These are based on the total populations in each case. It still appears that overall the glass industry workers had a higher mortality rate than the general population, once 20 was reached.

An alternative and equally valid, approach, that results in figures approaching Bevan’s, is to again apply the formula to each age band but using the population in each age band as the denominator. This gives:

Age	10-	15 -	20 -	25 -	35 -	45 -	55 -	65 -	75
Glass	0.059	0.249	0.685	1.215	1.469	2.569	5.357	13.650	23.810
Total population.	0.447	0.654	0.870	1.039	1.334	1.794	3.117	6.385	15.755

In this analysis, 25 - 34 becomes a turning point. It would require a lot more work to determine the causes behind the above figures, and that is beyond the scope of this Study.

Leaving mortality behind, reference to these two studies, and Eyres’ reminiscences in Appendix 1, gives us some idea of the conditions obtaining towards the end of the works’

existence, and it would appear that the glassworks were the focus for quite a vibrant and busy community, both at work and relaxing. This must have had some spin-off as far as the rest of the community was concerned.

The closure of the glassworks must have had a considerable effect on this community, as it is clear that the mining industry was also troubled, followed by depression in agriculture. The results must have been fairly profound, as we have seen in 1862, and from Eyres (Appendix 1). Family ties, it is suggested, were probably strong, so dependent relatives would have been an added complication. The older workers would be either unable to get employment elsewhere or reluctant to relocate late in life. Those members with few or flexible family ties, and/or a natural tendency to “get up and go” would have pursued alternative employment, either in the locality or elsewhere. The remainder, who were probably reasonably competent at what they did, but without the initiative or ability to change would have just had to accept what they could find locally, hence Eyres’ closing remarks in Appendix 1. As an example and comparison, on Clydeside, during the great depression between World Wars I and II, many workers would congregate outside the shipyards at their normal starting time, because that was their habit, even though they knew the yards were closed, but there was unfinished work to be done, and “today might just be the day it started again.”

It is fair to say that the glassworks have continued to have an influence on Nailsea. Once closed they would have cast an increasingly gloomy air of dereliction over the east end. Once the cones were demolished the site would have continued to be a ready-made adventure playground, probably to the despair of parents, until infilling development started. Even then there would still be a lot of scope for adventure.

The Nailsea and District Local History Society has led several attempts to get Nailsea’s historic glassworks site protected and even developed sympathetically. [See, for example, ‘Preserve the glassworks’ in the *Evening Post* of Saturday August 20, 1988.] As commented in another part of this study it would appear that the commercial interests of the owners and local government organisational changes, together with bureaucratic inertia have combined to frustrate these various aims. The excavations of the 1980s seemed to generate considerable local interest, but the site was allowed to become derelict and overgrown, so that there are now probably many people in Nailsea who are completely unaware of the historic site just across the road from, and indeed under their feet, where they shop. Dommett wrote in 1987 about the legacy of the glassmaking and mining families. A generation later these have now probably been overwhelmed by the incomers from elsewhere as a result of the development of what was a village in to what is now a satellite town between Bristol, Clevedon and Weston-super-Mare.

The site is now going through the ‘Scheduling’ process, so what will happen to it in the future is not clear. It played a significant part in Nailsea’s history and development, and through the [possibly inadvertent] medium of ‘Nailsea Glass’ has meant that the town has a much wider recognition in the world than might otherwise have been the case. It is to be hoped that the site itself will, in due course, receive due recognition, and the required investment to make it a meaningful feature and resource in the community.

## **BIBLIOGRAPHY**

Barker, T C, 1977: *The Glassmakers – Pilkington: 1826 – 1976*, Weidenfeld & Nicholson, London

Bevan, G Phillips, 1876: *The Industrial Classes and Industrial Statistics, (Mining, Metals, Chemicals, Ceramics, Glass, Paper)*, Edward Stanford, London.

Buchanan, A and Cossons, N, 1969: *The Industrial Archaeology of The Bristol Region*, David & Charles, Newton Abbot

- Chance, J F, 1919: *A History of the Firm of CHANCE BROTHERS & CO. Glass and Alkali Manufacturers*, Printed for private circulation, Spottiswood, Ballantyne & Co, London
- Commissioners of Excise, *Thirteenth Report: Inquiry into the Excise Establishment and into the Management and Collection of Excise revenue throughout the United Kingdom – Glass (1835)*, Command Papers – Report of Commissioners, Session 1835, Paper 12, 13, 14, 15, Volume/Page xxx1, 169, 395, xxx1.1. Public Record Office Microfiche number 38.233-239
- Crean, M, 1844, 13<sup>th</sup> August: *First report of the Committee of the Loyal National Repeal Association on Glass Duties*, Browne, Dublin. [It appears that flint glass in Ireland was his main concern.]
- Dommett, H E, 1985: *Nailsea and the Glass-works*, Bristol Industrial Archaeological Society Journal 18
- Dommett, H E, 1986: *Nailsea and the Glassworks Part 2*, Bristol Industrial Archaeological Society Journal 19
- Dommett, H E, 1987: *Nailsea and the Glassworks Part 3*, Bristol Industrial Archaeological Society Journal 20
- Greenhill, B J, 1975: *John Robert Lucas*, SRO PAM 947
- Morgan, K O, (Ed.) , 1984: *The Oxford Illustrated History of Britain*, Oxford University Press. Oxford
- Parkin, R A, 2000: *The Window Glass Makers of St Helens*, Society of Glass Technology, Sheffield
- Reader's Digest Library of Modern Knowledge*, 1978: Reader's Digest association Limited, London
- St George Gray, H: "Notes on the Nailsea Glass Works", *The Connoisseur*, March 1923
- SRO: D/B/bW 2349: J Chubb papers – contains bill for glass bottles with glass-blowers vignette from Powells of Bristol, (27<sup>th</sup> October 1846) and another for window glass from Coathupes &Co. (Bristol, 20<sup>th</sup> Feb. 1846) with vignette of Nailsea works, both to John Bowen of Bridgwater.
- Thomas, M, 1987: *The Nailsea Glassworks*, Thomas, H G and Thomas, M A, Bristol.
- White, J E, 1865, *Report upon the Glass Manufacture*, to the Children's Employment Commission. Full reference not determined, but presumably a parliamentary report.

## **APPENDIX 1 - Part of John Eyres' Autobiography**

The transcript from which this is taken appears in the SMR 2397 documentation, Folder E. There will probably be a complete version in Nailsea Library local history collection.

### **“NAILSEA GLASS**

An extract from the autobiography of John M Eyres, 12, Powderham Crescent, Exeter.

The Nailsea Glass factory was originally started, I believe, about the end of the 18th or beginning of the 19th Century, and had already known several proprietors. At one time a Mr. Coathupe, at another Rodbard, Bean & Co. In my school-days a Mr. Isaac White was working it. It may be that, before Free Trade brought Belgian and other glass into England, the Nailsea factory was worked at a profit, but evidently Mr. White did not make it pay, as it had come to a standstill in the year 1861.

Early in 1862, Mr. Samuel Bowen, a bankrupt Glass Merchant of West Bromwich, appeared upon the scene and made a fresh start under the trading-title of the Nailsea Glass Company.

How on earth he managed to get himself into credit again after one, if not two failures, passes the wit of any ordinary man of business to conceive; but that he did so was a stubborn fact, showing him to be a very stubborn, as well as a sanguine individual. First of all he just had the Central House furnace lit, where as before stated, they made Crown as well as Sheet glass and this continued until September of the same year, when the roof of the furnace fell in and most of the men and boys were thrown out of employment for about a Month. During that month the 'New' house, the one nearest the Royal Oak Inn was put into working order and commenced in October for the manufacture of Sheet Glass only. A year or two later, the 'Lily', the smallest of the three houses, was got ready for the making of Rolled Plate Glass. Another year or two passed and the Central house was working again, so that all three were working at full blast but, if my memory is not at fault, no Crown Glass was made there after 1862. Not content with all this progress, Mr. Bowen had taken another Works, of two furnaces, at Stourbridge; so that by about 1867 he had two large factories at work and had established three agencies in London and one in Glasgow for the sale of his wares.

The net result of all this was that in July 1869 he succeeded (?) in failing for £30,000 out of which his creditors managed to squeeze two shillings and sixpence in the pound. During the seven years and a half he was conducting this business he found employment for several hundred men and boys. I remember fetching £400 in gold and silver, myself, from the West of England Bank in Bristol, where-with to pay the men at Nailsea alone, their wages, for one week.

Tom Greaves, he was called, a glass-cutter by occupation, and very clever at making all kinds of fancy articles in glass. He made me a splendid Kaleidoscope, I remember, but what became of it I have entirely forgotten. On the stoppage of the Works Tom went away to the Tyne Side.

Soon after entering the office, I cannot remember exactly when, a Brass Band was started in connection with the Glass Works, under the conductorship of the foreman glass-cutter, Mr. William Mallin, a skilful performer upon the Cornet and a good all-round, intelligent musician. There had been a Fife and Drum Band previously.

But greater glory was in store for us when a Volunteer Corps started in Nailsea and we became the band of the First Somersetshire Engineers. Then we were arrayed in scarlet tunics with blue facings and yellow braiding, dark blue trousers with broad red stripes on the outside of each leg; buff belts with black cartridge pouches.”

[*Break in copy.* The missing section appears to deal with the Volunteer Company.]

*Continuation*

"I began teaching others their drill before I had properly learnt my own. This was just as I turned eighteen.

Before Midsummer, changes were taking place at the Glass Works which caused some of the men to go away, I was made Second Corporal in place of one who had gone and that entitled me to a stripe upon each arm.

Having given a chapter on my experience as a Bandsman and another on Volunteering, the reader now knows almost as much as I can recollect about the way in which I used to spend my spare time during the last two years of my sojourn at home with my parents. My next chapter must give an account of the collapse of the Glass Company through the bankruptcy of Mr. Bowen and the scattering of all or nearly all the employees to the four winds. A year or two before, a great dinner was held at the "Royal Oak", at which Mr. B. told us he "hoped to stand as Candidate for Parliament at the next General Election (for North Somerset) and he intended to come forward as a Liberal-Conservative", so he wanted all the votes. However, that election has never come off yet, for Mr. Bowen never reached the full height of his ambition.

An Ignominious Collapse.

The reader will now have gathered, from the foregoing chapters that, during the late 'Sixties, the neighbourhood of Nailsea Glass Works was a fairly lively place to live in. Since 1862 there had been an ever growing demand for skilled, as well as unskilled, labour; until, within seven years of starting, Mr. Bowen, trading as the Nailsea Glass Company, was paying away from £380 to £400 per week in wages. This, of course, meant considerable prosperity to the inhabitants of Nailsea generally and was good also for the surrounding district.

The brass band was formed in order to keep the men together, as well as to enliven the place occasionally, while entertainments, very popular at that time, in the form of Penny Readings, with now and again a Concert, were held weekly during the winter.

Then came the establishment of the Volunteer Company, which gave the young manhood of the place an opportunity of manifesting their patriotism, so that, taken altogether, matters were "going very strong" by the early part of 1869. All this progress (?) centred chiefly, if not entirely, around the one man, Samuel Bowen.

What a life that man was leading at the time!

Travelling by night, selling his goods and settling his accounts by day, doing his office work Saturday-night, Sunday-morning or whenever he could catch an opportunity; turning up at the Independent Chapel on Sunday-evenings and leading the choir "for the life of him". His voice was rather raspy and he always sung the air of a tune but that didn't matter, it was Mr. Bowen singing, so it must be all right.

Besides this, he was renting a farm; but his knowledge of agriculture was as faulty, I fear, as his wisdom in coal-mining. Even in that direction he tried his hand, sinking a lot of other people's money down a shaft and bringing up nothing in return but a lot of poor soft stuff of coal, scarcely worth burning.

I am afraid the shareholders in the Limited Company he floated, in order to work that coal mine, had cause to remember Mr. Bowen, for the rest of their natural lives. And yet Samuel Bowen was looked upon almost as a living wonder up to a certain time. When he made his first appearance as Captain of the Engineers, in all his "War Paint", he was the centre of attraction,

"the observed of all beholders" and yet he was obliged to have a Sergeant standing close behind him to tell him what to say. What a farce!

But previous to that, I remember an old gentleman, Mr. John Brooks, a pillar of Nailsea Nonconformity, getting up at a meeting and making a speech in his honour, telling he was so struck with his virtues that he had been trying to make up some poetry about him but could not get the Muse to move beyond a couple of short lines; they were

"Mr. Bowen  
Keeps us all a goin'."

Let us leave the quality, as well as the quantity, of that poetry to the consideration of the Critics. All I wish to say is, that the above sentence was as true as it was terse, up to a certain time,

Mr. Bowen did "keep us all a goin'" and the pace was rapid while it lasted but it came to an abrupt conclusion, when, far from keeping us "a goin'", he set us all agog.

As I mentioned in a previous chapter, changes were taking place at the Works some time before Midsummer but neither of the Office Staff had any suspicion that anything was wrong until, one day, the Manager from Brock & Bruce's, Timber Merchants, Bristol, came down and gave Mr. Gill, the Head Clerk, a big order for glass. Of course Mr. Gill was delighted, to get such an order but when Mr. Bowen returned the game leaked out. He was owing Brock & Bruce £90, and they, having had notice of a Creditors' meeting were anxious to take the debt out in goods. They were trying to steal a march on the other creditors and Mr. Bowen knew he ought not to let them have the glass. However it was a case of "Diamond cut diamond", so Mr. B. instead of refusing to supply, "hoisted then with their own petard". He happened to see me in Nailsea on the Sunday evening and sent me round to tell the packers to be at the works early on the Monday morning and he was there to meet them. He gave them orders to alter the marks on a lot of crates of "*diamond*" quality 15 oz. glass, to 3 rds 15 oz. thus promoting the coarsest glass by two degrees and charging 3d. per foot for what was usually sold for three-half-pence. A lot of small sheets, "ends" we used to call them, which used to fetch 1½d. per foot delivered on Glasgow Quay, were similarly treated. The consequence was, Messrs. Brock & Bruce's invoice ran up to £190, £100 more than the Glass Company owed them and, to be quite plain, Mr. Bowen had cheated them out of quite the full amount of his own indebtedness to them. Supposing the other Creditors knew all about it, they would not be likely to complain as the £90 being wiped out in that way, there was that much more to divide between them.

I often heard it said at Nailsea that there was "roguery in every trade but Glass and that you could see through". I have had a great many years' experience of other trades since then but can safely say I have never come across a sharper trick than that was.

Within a very few days after the above incident, Messrs. Denning, Smith & Co., Accountants of Bristol, were placed, by the Creditors, (I presume) in charge of the books and their clerk, a Mr. Brown, was in constant attendance at the office.

On Saturday, July 3rd, 1869, we held our last pay-day and on Monday morning, July 5th, about 500 men and boys were standing idle, including the office staff. (I should here state that Mr. H. H. Ham, who had been sent to Stourbridge to manage the Office there, gave such satisfaction to the Accountants that they took him into their own employment, eventually making him a partner).

As already recorded, in an early chapter, Mr. Bowen eventually paid his Creditors two shillings and sixpence in the pound.

Many of the more skilful workmen, blowers, flatteners, etc., had been earning very good wages for several years; taking them as a whole, they were an improvident lot and had saved but little; the consequence was, before many weeks were over, those who had not managed to secure situations elsewhere were, skilful or unskilful, “on their beam-ends” as a sailor would say.

There was dire distress in Nailsea.

To the credit of the neighbouring gentry, be it said, a relief fund was started to enable -the workmen to tide over the bad times in some measure, but, even so, it was a sorry spectacle to see men who had recently been earning from £2 to £4 per week, helping to make cinder paths by the road side for a pittance of about two shillings per day.”

## APPENDIX 2 - Evidence from Nailsea – Children’s Employment Commission 1865

This is attached to the Report upon the Glass Manufacture to the Children’s Employment Commission by J Edward White, dated 29<sup>th</sup> April 1865, from Lincoln’s Inn.

“P.217

“THE NAILSEA SHEET GLASS WORKS.

51. These are very old established works, indeed I was told, probably the oldest of their kind in the kingdom. They are peculiar in being in an entirely country district, Nailsea being a village several miles below Bristol. Their situation is probably owing to the presence of coal, as there appear to be several collieries in the immediate neighbourhood. The glass blowers were not yet at work at the time of my visit, a Tuesday morning, but the appearance of the few boys whom I found in the works was much more healthy than what I have usually observed in glass houses in manufacturing districts. One or two whom I questioned, had not begun glass-house work till a comparatively late age.

52. *Mr. S. Bowen.* —There are about 200 persons employed in these work, all males but one, and about 50 of them under the age of 18. We make four journeys in a week, both in the two sheet glass houses and in the rolled plate glass-house. In the sheet glass houses the journey for the men is on the average 10 or 11 hours, or if all the pots are in full work, it may be 12 or 12½ hours, but never more. The boys, however, come before the men to get the things ready, and so work on the average 13 or 14 hours in each journey. Each blower has a gatherer, who is a man, and a boy usually of from 13 or 14 to 17 or 18, who helps by carrying the pipes, holding them at the furnace, &c. The few youngest ...

P.218 boys who are perhaps from 11 to 13 years old, are called spare boys, and. hold shovels at the furnace to screen the gatherers. In the rolled plate house the journey does not average more than 9 hours. In that all but one or two are men.

The work falls about equally in the day and night. As near as any fixed time can be named, the first journey begins some time in the afternoon of Thursday, on which day our week begins, the second from midnight on Friday to 2 or 3 a.m. on Saturday, the third from midnight on Sunday to 2 a.m. on Monday, the fourth on Tuesday afternoon. The times of beginning, however, vary considerably, and the two sheet glass-houses are seldom together. The difference is caused by the delay in setting pots. It is quite a chance when new pots may be needed. A little carelessness in the men who have charge of the furnaces might spoil the whole set of pots. When the working journey has once begun it is not liable to be interrupted or hindered by accidental causes. The pots break only in the founding when the heat is much greater. The weather, unless it is very extraordinary, does not affect us. When the working has once begun it must be finished, or the expense of preparing the metal, which is great, would be wasted. Hence it has happened, but very rarely, only once or twice I think in the three years that I have had these works, that the glass blowers have been obliged to work on Sunday. As a rule we contrive to finish in good time on Saturday afternoon.

Besides the boys in the glass houses there are others, about seven of like ages, called "push boys," who push the cylinders into the kilns in which they are flattened out by men. They work from 6 till 6, days one week, and nights the other, except on Mondays and Saturdays. On these two days the two sets work less, dividing only 18 hours between them, viz., from 12 on Sunday night till 6 p.m. on Monday, and on Saturday from 6 a.m. till 12 p.m. They have usually no work on Wednesday night. A push boy could not properly work over to take the place of a boy in the other turn. Our loss would be too heavy to let them do so. They would be too tired, and if a boy broke even one piece of glass that would be as much as a good bit of his wages. Indeed

in all parts of glass house work, the principal thing is to have a good supply of hands. Nothing is so fatal to a manufacturer as to be short handed. The workers will take advantage of it directly as an excuse for not working if a chance arises, so that it is necessary to have some surplus. A woman and a few boys help at pot making, and there is an engine for the clay mill.

The glass blowers stop about half-an-hour in the middle of their journey for a meal. The flatteners have no fixed meal times, but take meals when they stop to put fuel into the kilns, which takes perhaps a quarter of an hour or so three times in the 12 hours.

We could not possibly do without having boys to work at night with the men. It is not desirable that boys should come to work younger than about 12. The loss in increase of wages would not be serious if they could not come till they were 14, as the boys under that age are so few, but that would be going to the extreme limit possible. Even to do the work of a boy of 14 a boy should have been in the house a bit before. The gatherers here I believe are all as much as 18, but boys are learning it before; e.g., before the men come, they gather some glass on the pipe to make the iron fit to begin work.

The English manufacturers are already at a great disadvantage as compared with foreigners. They have been over to France this year to try to get the import duty to France taken off. This presses very heavily upon them, while the French can send their glass here without any import duty. The Belgians, however, are the greatest sheet glass manufacturers, and owing probably to the greater cheapness of their labour, can send their goods and sell them here cheaper than we can possibly make them in England. In one case I found that they could supply at a 1d. what I could not make under  $1\frac{1}{2}$ d.; and in another case I found a still greater difference. Since the American war has in a great degree cut off one principal market of the Belgian goods, these have come to England in still greater quantities than before.

Owing to these causes sooner or later there will certainly be a change in the English glass manufacture to enable us to meet the foreigners, most likely by making a lighter class of goods, and so employing younger boys. There is no doubt whatever about that; or at least that something to answer the same end will be done.

The English glass is far superior to the Belgian in quality. We work with two furnaces, they with only one, i.e., for both melting and blowing. The two furnaces are of course a greater expense, but enable us to ensure purer glass. I have been through Belgian and French sheet glass manufactories.

It is quite a mistake to fancy, as some do, that there is anything unhealthy in glass making. The only thing to be noticed is the heat, and that is harmless. I believe that I may say that there is not one unhealthy boy in the works, and that is a great deal to say. I try in every way to make the work as comfortable and agreeable as possible, and particularly to see that the boys are kindly treated, as I feel sure that they are.

We are in a deplorable way in this neighbourhood for schools. There is only one at all near, and that under a governess and dwindling down. The mass here are rough and untaught, and this neighbourhood will suffer for it. The children appear to be taken but little care of and may be seen idling about in crowds. Yet the glass makers earn good wages, the blowers from £2 to £4. a week, and the gatherers from 24s. to 30s. If the Government could be got to make a grant towards schools I would gladly give towards the fund. When I am able I shall try to have some school in connexion [*sic*] with the works. The boys are very ignorant. That big youth there, who is about 20, I dare say cannot read or write. I also think of trying some way of getting any that I can to attend a place of worship; nothing would give me greater pleasure than to get them to do so.

53. *John Urch*, age 15. —Mind the pipes and blocks in a sheet house. Went to a sheet glass-house first at St. Helens (large works), and held the shovel when I was going in 8; was about 7 years and 6 months old. Father was a teaser there. The work and hours were much the same as here. The glass blowers worked about a ten hours in a journey, and we came about two hours before them. Had to hold the shovel as soon as ever a pot was started; did not wait till the metal was worked some way down. There would be three or four gatherers at a pot. Shovel holding was a deal easier than my work since, i.e., minding pipes, &c., but warmer. There were several houses there and working at different times. Sometimes if a boy was bad in another house I would go and take his turn or part of it. Have gone six journeys in a week so. The most I ever worked at one time without stopping was 24 hours. Had no sleep in that time. After that, would come on again when my own house was ready, perhaps in six hours.

Have not been at school except at St. Helen's, three days a week when off work. Have been here going on for three years. Don't know the letters.

54. *William Day*, age 15. —Push cylinders into a flattening kiln. Hours (as above, No. 52). Have worked over in the place of a boy in the other turn if he was away for part or all a turn. Have worked 36 hours at a time so. Here a year. Have meals when the man puts the cokes in, which stops the work about a quarter of an hour at a time. Was in a gentleman's service before; would sooner be at this work. Was also at farm work.

Cannot read very well (book shown). Cannot read at all; only know the letters.

[Fine healthy boy.]”

### APPENDIX 3 - Historical Context

This has been included as it was thought it would be useful to put the preceding work in to a wider perspective of British national and international politics and events. No attempt has been made to relate one to the other. The following, which does not claim to be all-inclusive, has largely been derived from *The Oxford Illustrated History of Britain* edited by K O Morgan:

- 1783 American colonies gain independence
- 1787 First ships sail to Botany Bay, Australia  
Commercial treaty with France
- 1778 Franco-American alliance
- 1789 French Revolution
- 1792 Coal gas used for lighting
- 1793 War with France  
Commercial depression
- 1795 'Methodist' independence from Church of England  
'Speenhamland' system of outdoor relief helped many rural parishes
- 1796 Smallpox vaccination introduced
- 1798 10% income tax on incomes over £200 introduced
- 1799 Trades Unions suppressed by Combination Laws  
Napoleon First Consul in France
- 1799 - 1800: Commercial boom
- 1800 Union with Ireland
- 1801 Peace with France  
Peel introduces first Factory legislation
- 1802 War with France  
General Enclosure Act
- 1808 British and Foreign Schools Society founded
- 1809 - 1810: Commercial boom
- 1810 Depression because of Orders in Council  
'Luddite' disturbances  
'National Society' schools founded
- 1815 Peace in Europe  
Corn Law passed: price of corn set at 80s. per quarter
- 1815 - 1817: Commercial boom
- 1817 Slump
- 1819 'Peterloo' massacre at mass reform meeting
- 1820 Death of George III. Accession of George IV
- 1821 - 1823: Famine in Ireland
- 1823 Monroe doctrine: USA will not tolerate European interference in Western hemisphere
- 1823 Commercial boom
- 1824 Commercial depression  
Trades Unions legalised  
Stockton & Darlington Railway opens
- 1830 Death of George IV. Accession of William IV
- 1830 - 1832 First major cholera epidemic
- 1831 'Swing' riots in rural areas of southern England against the mechanisation of agriculture
- 1832 Great Reform Bill
- 1833 Factory Act limits child labour  
Parliament voted £30,000 grant for elementary education
- 1834 Parish workhouses instituted  
'Tolpuddle Martyrs' transported to Australia  
Abolition of slavery

- 1835 Municipal Reform Act (Local government franchise extended to all ratepayers)
- 1835 - 1836: Commercial boom: 'little' railway mania
- 1836 Death of William IV. Accession of Victoria
- 1837 Chartist riots
- 1840 Penny post established
- 1842 *Inquiry into the Sanatory [sic] Condition of the Labouring population*
- 1843 - 1844 Economic boom
- 1844 Royal Commission on Health of Towns
- 1844 - 1845: Railway mania (5000 miles of track laid)  
Potato famine begins in Ireland
- 1845 Corn law repealed
- 1848 Revolutions in Europe  
Public Health Act
- 1851 Great Exhibition
- 1854 Compulsory appointment of Medical Officers of Health to towns
- 1854 - 1856: Crimean War
- 1858 Indian Mutiny
- 1859 Darwin's *Origin of Species*
- 1861 - 1865 American Civil War
- 1862 Limited Liability Act provides vital stimulus to accumulation of capital in shares
- 1868 - 1874: Commercial boom, followed by twenty years of "sharp and substantial deflation"
- 1873 Gladstone Liberal government resigns
- 1875 Agricultural depression deepens