

## Chapter Eleven

### Coming of Lead Glass

In 1612, Paull's son John was born but quite a bit was going on then. When Queen Elizabeth died in 1603, her successor, James the First, hastened to conclude a peace with Spain. This was not because of his Catholic sympathies but to deprive the Catholics at home of foreign support. For surprisingly they were the ones who most questioned his right to the throne. James supported the bishops to withstand Puritan pressures. Strengthened by this support following the Convocation of 1604, 300 Puritan clergy were driven from their livings and further hardships were imposed. The breach with the Puritans was followed by a breach with the Catholics when various penal laws were re-enacted. Hopeless of aid from abroad and in general despair the Catholics, with Robert Catesby at their head, formed the conspiracy to blow up Parliament on 5th November 1605.

Fortunately, with their anti-Catholic Huguenot background none of our men was involved. But the discovery and foiling of the plot led to a more submissive Parliament, which acquiesced to new duties and taxation. James created new offences, imposed new penalties, and called offenders before new courts that had no legal jurisdiction over them. It must have been tough to keep out of trouble. Parliament tried to counteract James' actions and was dissolved in 1611 for its trouble. James got by for three years before he needed to recall it. Finally in 1614 Parliament was recalled but it immediately upset the King again and did not get another chance until 1621.

During this time, John Tyzack was born. He was Paulle's eldest son born on 26th April 1612. It is this record of a baptism, which gains Paulle the credit for being the earliest recorded glassmaker in Kingswinford and therefore the founder of the Stourbridge glass industry. As a result, the new Broadfield House Glass Museum in Kingswinford, West Midlands has named a new gallery after him. It is called the **Tyzack Gallery** and offers a programme of six major exhibitions a year with the emphasis on international quality.

John's first wife was Maudlin but they were not very lucky with their children. The first, a girl called Bridget, was named after John's mother. Bridget was born in 1636 and survived but her sister Sarah born 1638, died just over a year later. Some terrible

contagious disease like smallpox must have been involved because her mother died seven days later.

John, undaunted by all the disease, by new taxes and by new repressions, married again. To whom alas we do not know, except that she was our seven x great grandmother. John and his new wife "Miss X" were not much luckier with their family. Son John was born in 1642, at the outbreak of the Civil War, and buried eight months later but luckily for us, Paul (2), who was born in 1643, survived. John the father kept to the family trade by becoming a glassmaker. At one point we find him paid 30s per week, a gaffer's wage. He followed his father Paulle and worked as a glassmaker at Colemans Glasshouse in Stourbridge Worcestershire. From 1655 he worked for his younger brother, who was another Paul.

In 1658 the original Colemans building, probably made of wood, burned down. The partners who had been working there were Paul, Zacharias his nephew, and Abraham Bigo. For a while, after the fire, they worked at Chelwood Somerset, for a man called Robert Foley but by March 1661 they were all back at Coleman's, Paul the younger having taken out a fresh lease and rebuilt the works. In 1663 Foley for whom they worked at Chelwood, together with Joshua Henzey, had contracted to buy up all the window-glass from the three glasshouses, Colemans, the Hooe and Brettell. This provided a guaranteed market for each glasshouse of £800 per year. The contract could be cancelled if another glasshouse set up locally.

With all that money coming to Paul, his brother John felt cheated. John thought his guaranteed wage of 30s per week was a poor share of the goodies. He threatened to build a glasshouse of his own and so end the contract unless he was paid an extra 10s per week. As a lifelong glassmaker, with the glassmaking tradition of the family behind him, John's threat was not to be taken lightly. Joshua Hensey promised to pay the ten shillings to John. All the parties to the original contract in the end agreed to pay a share of the 10s. At first the payments were made. But in June 1665 John was discharged from Colemans and the ten shillings payments ceased. The reason for the discharge is not known but there is evidence that another glasshouse was set up locally by Hickman. John was almost certainly suspected of an involvement. John immediately brought an action in the Court of Exchequer against Joshua and his agent Oseland. The results of the case are not known. Suddenly Joshua left the country for Ireland. Within six months he was dead.

Coleman's discharged John the year of Paulle's death, in 1665. Then John was 53 years old and may have been suffering from an industrial disease due to the work. Perhaps he simply did not get on with his brother. During the court case concerning this issue he was described as *aged, weake and troubled with many infirmities*. He died five years later at the age of 58 years.

By 1665, of course, Charles the First had come (1625) and gone (1649) but we cannot pass by the events prior to John's son Paul(2)'s birth. This Paul would have been

conceived in March 1643. On 4th January 1642 King Charles had stormed into Parliament to demand that it deliver Pym and four other members to him. Soon after that, negotiations were broken off between Charles and the Parliamentarians. By 23rd October 1642 the armies of the Cavaliers and Roundheads were fighting each other at Edgehill just forty miles away from where Paul(2), a few months later was born.

Guttery says " *During the Great Civil War , the district was a no -man's -land in the holding of neither party for very long, but plagued and systematically plundered by both. As far as we know the glassmen worked steadily through it and, like the other householders paid their 'weekly pay' to the constable whose duty it was to collect it for the wages of whatever troop was in temporary occupation. They suffered the forced company of such soldiers as were billeted on them. If the troopers did not use their swords there, their thieving hands were busy enough. Humphry Jeston lost three of his horses. William Bache of Amblecot was robbed of his money and writings<sup>1</sup>. Paul Tyzack lost his deeds and an indenture of his nephew Zacharias's apprenticeship which were imbezeled and taken from him by they souldyers.*"

So during all this conflagration and disturbance Paul(2) came into the world. It is very surprising that these goings on so close to where they lived did not subdue father John's ardour a bit. It is not that there was just the one battle in that region. Even by 1644 the armies were still slugging it out again at Cropredy Bridge, a mere seven miles further away. Not only would one expect all this to have had an effect upon the be droom environment. It must have had at least some effect on the marketing of their product glass. How many people would have been thinking of putting in new windows when they had a fair chance of their property being destroyed? Unless of course the business was all in replacements!

Anyway through all the smell of gunpowder and whine of roundshot Paul made it. In 1670, at the rather mature age of 27 years, he married Ann Patchett at Hagley just down the road. Paul(2) also followed the family trade and became a glassmaker. He trod in the footsteps of his grandfather Paulle, the first glassmaker to have brought the use of pit -coal as fuel to complete success. In 1678 Paul(2) and John Pagett, Ann's brother, paid Thomas Grove, a gentleman, and Mary his wife, £10 down and eight shillings a year for the 99 year lease of a glasshouse in Hagley which they occupied. It had half an acre and some buildings.

By Paul(2)'s time a technological improvement arrived. A better way of making drinking glasses was found. It was not such a problem for broad or window glass makers as for drinking glass makers. George Ravenscroft, a chemist, invented a new kind of glass. There is some doubt about George's origin. W. A. Thorpe in his *History of English Glass, 1929*, identified him as George Ravenscroft of Hawarden in Flintshire, born 1618, died 1681. R.J. Charleston, in *English Glass*, writing later, is

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1 Writings meant his deeds.

convinced that he was George Ravenscroft, second son of James, born 1632, and died 1683. This George, had a brother, Francis, with a glassworks in the Savoy. George was a London ship-owner and a chemist, deeply involved with the Venetian trade and with a special interest in glass. He began his researches at the Savoy glasshouse in 1673. Later he did most of his experimental work at Henley-on-Thames. He had been engaged to do so by the London Glass-Sellers' Company and worked with an Italian named Da Costa. A patent was granted to Ravenscroft in that year for the invention of " *a new sort of crystalline glass resembling rock-crystal*".

It seems likely that a new source of silica had been found in English flints which could replace the imported Venetian pebbles. In the original Venetian *cristallo*, which appears to have been their target, Venetian soda was used as the alkali, Ravenscroft used instead potash. It is likely that the flints proved somewhat infusible and so an increase in the potash content was tried. This increased level of alkali, in turn led to the fault known as "crisselling". Glass, suffering from this defect showed a gradual deterioration from a network of fine internal cracks. It is a progressive disease of glass due to an excess of alkali, which leads to complete disintegration.

Ravenscroft's great discovery was to find another fluxing agent. He found that by reducing the proportion of alkali and by the introduction of oxide of lead he cured crizzling. (In later years, the importance of the lime content of glass came to be understood, too much of which could also cause crystallisation and too little a susceptibility to water damage.) Lead oxide also created a strong heavy brilliant glass similar to rock crystal. Now crizzling had been a persistent problem of small glassware with this network of fine internal cracks destroying the transparency of the product. Lead oxide had been used before, but the previous formulations were not suitable for the manufacture of vessels. These earlier formulations, resulted in a very brittle glass. It was reported that the crizzling defect in flint glass had been remedied in 1676. So here was a new competitive product entering the market. At first Ravenscroft's experiments had used flints, but sand was soon substituted, although the term flint glass still continued.

By 1683, Ravenscroft died and his patent was not renewed. This effectively handed over his invention of lead glass to English glassmakers. The new product became known as lead crystal or flint glass. Yet to this day the term flint glass is still used for it. There are various descriptions of its properties " *It had an oil-like brilliance and a peculiar darkness in its shadows, with a remarkable light dispersing quality, giving it exceptional fire.*" All this is due to its higher refractive index. Indeed optical lens makers still combine lenses of crown with lenses of flint glass to obtain compound lenses of special properties, such as no chromatic aberration. Although fusing at a lower temperature the molten lead glass was particularly corrosive to pots. So there were technical problems in the use of "white" glass. A contemporary writing says it has " *the distinction of sound discernible by any person whatsoever.* " Certainly the weight, with the clear ring of a lead crystal glass is a simple test for the material.

Lead crystal transformed the demand for English glass so that English glass now became the favourite for drinking vessels in Europe until others began to copy the

secret. By 1698, Edward Houghton, a local glassmaker, in evidence given to the House of Commons mentions six or seven glasshouses in Stourbridge which were making white glass, (from the white lead used).

Paul (2) died intestate in 1685 but in the inventory of his estate his Partnership in the Glasshouse was worth £60. His stock in bottles was valued at £30. Debts owed to him were £25 and the total of his goods was £150. The inventory proves his output was not all window glass. So the improved technology for drinking glasses, could have contributed to the family problems with their glass business, and thus to their branching out, later, into tools. In 1695 the costs of the war with France forced the Exchequer into a scheme for taxing among others the glass industry. There was a twenty percent duty on flint glass and one of a shilling a dozen on bottles. For some reason the government gave the industry four months notice of its intentions. Consequently great stocks were built up and afterwards the industry had a period of idleness. It was claimed that fifty -five out of sixty -one provincial glasshouse closed down and the rest went on short time. There followed a well-organised campaign in Parliament against the tax. A Committee of Inquiry found that the duties were grievous to manufacturers while bringing little advantage to the King and that if they were continued there was a danger of the glass industry being lost to the Kingdom. The tax was withdrawn in 1699.

We note that a John Tizacke of origin unknown sailed to Pennsylvania, America in 1687<sup>1</sup>. He was later mentioned in a Quaker letter from Pennsylvania published in 1691, called "*Some letters & an Abstract of letters from Pennsylvania....*"

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<sup>1</sup> A history of Chester County, Pennsylvania with Genealogical & Biographical Sketches" pub Louis H Everts 1881.