

The Glass House at Gurteens

AND GLASS DEVELOPMENTS OF IRELAND BEFORE ITS ESTABLISHMENT

In early times the craft of glassmaking in Ireland developed much as it did in England. In 1258 a Frenchman, William the Glassmaker, received a grant of land for the purpose of making glass, and this is the first such record in Ireland. (1) Up until 1580 a number of glaziers came to Ireland who were primarily makers of window glass and had acquired their craft in Sussex. The first serious enterprise was established in 1586 by a Captain Thomas Woodhouse and this business was taken over in 1589 by an Englishman, George Longe, who owned four out of 15 or 16 English glasshouses, and in a petition to Queen Elizabeth he asks for a licence to manufacture glass enabling the superfluous woods in Ireland to be used "being now a continual harbour for rebels" and giving employment to the "many idle people". (2) This business was carried on at Curryglass in Co. Cork.

"In the seventeenth century, glassmaking had a very haphazard course." (3) Boate's Natural History of Ireland records that there were "several glasshouses set up by the English in Ireland, none in Dublin or other cities, but all of them in the country; amongst which the principal was that of Birre . . . From this place Dublin was furnished with all sorts of window and drinking glasses . . ." (4) This glasshouse was established around 1623 by Abraham Bigo, who came from Lorraine via England.

Some of the Irish landowners established industrial ventures and one of these was the Earl of Cork who set up an English managed glasshouse at Ballynagerah in Co. Waterford around 1620. It is probable that Co. Waterford was the home of a glasshouse a Venetian established in 1618. (5)

NOTES :

1. W. A. Thorpe—A History of English and Irish Glass. 1929 p. 128
2. Manuscripts of the Marquis of Salisbury.
3. W. A. Thorpe—p. 270.
4. G. Boate—Natural History of Ireland. 1625. p. 89.
5. W. A. Thorpe—p. 270.

In 1639 a proclamation forbade the manufacture of glass in Ireland and in 1641 a Bill was passed prohibiting the felling of timber to provide fuel for the glass and iron industries. After this, few country glasshouses were founded and the industry moved to the towns where coal was more easily obtainable.

In 1675 the development of lead/flint glass took place in England and the Company of Glass Sellers authorised the inventor, George Ravenscroft, "to dispose of anything made before August 'beyond the sea to Ireland or any other parts'. In other words he was to dump inferior goods." (6)

The first lead glasshouse was set up by Captain Philip Roche soon after 1690 in Dublin. (7) His works twice fell down during their erection "and in the latter accident he was buried in the ruin as he was pointing to a defect in the upper work; this circumstance luckily saved his life, for the tip of his cane appearing through the rubbish, he was speedily freed." (8) It is probable that glass was continuously manufactured in Dublin from this time until the end of the nineteenth century. (9) Until 1780 there were only one or two small and abortive factories outside Dublin. (10)

One of these was the Gurteen glasshouse erected shortly before 1729. (11) The import figures for drinking glasses through Waterford in the year ending March 1729 are half, and in the year ending March 1730, a twelfth of the 1728 level. (12)

The first mention of the glasshouse appears in the Dublin Journal for the 24th May, 1729: "These are to give notice that the Glasshouse near Waterford is now at work, where all persons may be supplied with all sorts of flint glass, double and single, also garden glasses, vials and other green glassware. Sold at reasonable rates by Joseph Harris at Waterford, Merchant."

On the 2nd November, 1731, the following advertisement appeared in the same newspaper: "The Glass-house near Water-

NOTES:

6. O. N. Wilkinson—*Old Glass*, 1968, p. 105.
7. M. S. Dudley Westropp—*Glassmaking in Ireland*, 1921, p. 37.
8. *Dublin Chronicle* II—13 Sept. 1788—*An Account of Glassmaking in Dublin*.
9. W. A. Seabv—*Irish Glass Exhibition Catalogue*, 1971.
10. W. A. Thorne—p. 272
11. M. S. D. Westropp—p. 68.
12. Public Record Office, London, Customs 15, Ledgers of Ireland's Exports/Imports 1698—1829.

ford belonging to John Head Esqre. has been at work for some time, where all gentlemen and others may be supplied with bottles, with or without marks, or at the warehouse at Waterford. There will also soon be made there best London Crown and other glass for windows, and sold at reasonable rates.”

The difference in the advertisements indicate that lead/flint glass and vials were stopped, and bottles and window glass were started. The Waterford import figures for drinking glasses in the year ending March 1732 are three times, and the figures for the year ending March 1733 seventeen times, the number for 1731. (13) The figures for vials show that none were imported before this change in emphasis, but that afterwards they were. (14) Perhaps it did not prove economical to manufacture glass based on imported ingredients, too difficult, or (since John Head is not mentioned in the first advertisement) there was a change of management.

The Head family was prominent in Waterford prior to the establishment of Gurteens—several members being High Sheriff and Mayor of Waterford. (15) I believe that John Head was born in Kilworth, Co. Cork, in about 1680 and that he went to Trinity College. (16) Some of the Head family were educated at Kilkenny College. (17)

John Head's death in 1739 was reported in the Dublin Journal: “October 30. This day died John Head Esqre., Senior Alderman of this city, and a gentleman of universal good character.”

The Glasshouse was advertised in the Dublin Journal in February 1740: “To be let for a Term of Years. The glasshouse of Gurteens, and 2l acres of land, with a good Quay and slips, a good dwellinghouse, . . . several warehouses . . . and a malt-house . . . The said premises will be shown to any person by Michael Head, Esqre., at Mr. George Backas's in Waterford, or by the said Mr. George Backas. N.B. There are several materials belonging to the Glassworks to be disposed of with the said

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13. Public Records Office, London. Exports/Imports 1698—1829.
14. Year ending March 1731 : 1600 dozen.
15. Michael Head, Mayor 1675. John Head, High Sherriff 1697; Mayor 1700.
16. Trinity College Register. Alumni Dublinenses, 1593—1846.
17. Index to the Royal Society of Antiquaries of Ireland.

premises, as Pots, Iron, Tools, a large parcel of ingredients for Crown glass, kelp, etc.”

No other reference to the working of the glasshouse has been found. In 1746 the manufacture of glass in Ireland was discouraged by an Act of Parliament which prohibited the export of glass and this restriction was not lifted until 1780.

The sources of the raw materials for the Gurteen glasshouse are a matter for conjecture. The principal ingredients needed were: sand, lead, saltpetre, potash, carbonate of soda and ground chalk. Depending on the type of glass to be produced these ingredients were mixed in various proportions, put into clay pots and then fired in a kiln—which in those days took 50 or 60 hours—until the materials were fused together. The pots were generally filled once a week and once fused the metal/glass kept at a working temperature for the succeeding days. If the temperature was not correct the entire batch would be spoilt.

The manufacture of the pot was a very skilled and important job; the failure of the pot could be extremely costly as it might contain nearly a ton of metal. (18) The clay for making the Waterford glasshouse pots was always obtained from Stourbridge in England, but Gurteens could have got its clay from Ireland, e.g. the Ballynagerah (Co. Waterford) glasshouse around the year 1622 obtained its clay from Fethard (Co. Wexford). However, contrary to this, Jeduin, one of the proprietors of the Square Glass House in Dublin stated to the Dublin Society in 1762 that while Irish clay was used for some purposes, the pots were all made of clay from Stourbridge. It is interesting to note that in 1758 a George Minty of Molinroe Colliery, Co. Kilkenny, exhibited a sample of new fire-clay in response to a premium offered by the Dublin Society. (19) It was found that a mixture of the old pots ground down and new clay (in the proportion of 1 to 3) was the most serviceable. The pot, when made, might have to be dried for six months before it was fired, and with luck a good one might last for six months. (20)

The kiln was a conical shaped brick building which had a

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18. O. N. Wilkinson—p. 22.
19. M. S. D. Westropp—p. 171
20. M. S. D. Westropp—p. 173.

firing chamber at the bottom with a pot chamber above—the pots being heated to about 1500°C. The kiln bricks were probably made in Ireland and perhaps were obtained very locally as it is known that in 1784 there were brickworkers beside the Barrow river, above its confluence with the Suir. (21) However, it is interesting to note that in the year ending March 1735 6,000 bricks were imported into Waterford from Spain. (22)

From about 1620 the kilns and annealing ovens began to be fired by coal and it is said (23) that Waterford and most of the Irish glasshouses used coal chiefly from South Wales. My figures for imports and exports through Waterford, which I got in London in 1970, do not mention coal, so I either forgot to record the coal imports or there were not any. I wonder if the Kilkenny collieries produced suitable coal at that time. I mentioned earlier Molinroe Colliery and the year 1758 and on 16th November, 1774 Finns Leinster Journal records that a Revd. Thomas Payne died “in the Colliery.” (24)

The glass articles were made by dipping and revolving a blowing-iron (a hollow rod) into the pot and gathering onto it a sufficient quantity of molten metal/glass. The gathering is then compacted and enough air blown into it to form a small balloon. Generally this balloon would then be blown into a hollow mould to form the top of a wine glass, a bottle, a decanter, a jug, etc. Other quantities of metal which had been gathered by subsidiary blowers would be added to form, for example, the foot of a wine glass, the ring around a decanter neck, the handle of a jug. During these processes it is probable that the glass will have been returned to the mouth of a subsidiary furnace (or glory-hole) to maintain it in its ductile state. In order to separate these articles from the unwanted part of the balloon, or to cut a wine glass stem to its correct length, shears were used.

At the time of the Gurteens glasshouse these articles would have been removed to an annealing kiln, which was closed in except for the entrance, where they would be left for up to a week until the kiln was cool enough for them to be removed

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21. Old Kilkenny Review. 1972—p. 48.
22. Ireland's Imports/Exports 1698 — 1829.
23. M. S. D. Westropp—p. 173.
24. Canon Carrigan's notes. Vo. 73, p. 59 .St. Kieran's College, Kilkenny.

by hand. The tunnel kiln became common after 1750, which was open at both ends. (25) The receiving end had a small furnace keeping the glass just below melting point and the articles were placed on iron trays which moved slowly—taking from 6-60 hours—to the cooler end where they were removed.

The basis of the glass was, and still is, silicious sand which fuses at high temperature. This silicious material can be found in a natural state in the form of flints, pebbles, and quartz. Charles Smith, in his *History of Waterford*, published 1746, says that “great quantities of spar may easily be gathered on our sea coast, they make a good ingredient in glass works, and so do most kinds of transparent pebbles.” (26) Although in England the practice of using these materials did persist into the eighteenth century (27), Birr glasshouse in the 1620’s used sand (28), and it is probable that Gurteens used sand also. “The silica necessary for glass making is generally taken from inland sources of sand—rather than sea shore.” (29) The advantages of inland sand are, firstly, that it can be ground down to a regularity of grain unattainable from sea sand—which leads to better fusion; secondly, there is far less obvious foreign matter, e.g. iron, to be removed; and, thirdly, the impurities are less frequent. (30)

England contains large areas of inland sand. The sand for Birr glasshouse came from England; and Waterford got some of it from Lynn, in Norfolk, and from the Isle of Wight. (31) (I was once told that Waterford got some of its sand from the Thomastown vicinity). In 1798 Wallace in his *Essay on the Manufactures of Ireland* said that “the principal materials for glassmaking are imported from England, the sand, which mixed with red lead, and now used as a substitute for flints, is principally taken from the Isle of Wight. The sand used for bottle glass is obtained in Ireland . . .” This extract shows that the sand for the better lead/flint glass usually came from England

NOTES :

25. O. N. Wilkinson—p. 109.
26. O. N. Wilkinson—p. 300.
27. W. A. Thorpe—p. 8.
28. G. Boate—p. 89.
29. O. N. Wilkinson—p. 19.
30. O. N. Wilkinson—p. 19.
31. M. S. D. Westropp—p. 169.

(although the Drumrea glasshouse, near Dungannon, working about 1772 obtained its sand on the spot) and the sand for the poorer quality glass was obtained locally. There are no records showing that Gurteens imported any sand, but a petition to Parliament in March 1784 indicates that no records were necessary. In it the Dublin glass manufacturers say that "for some time sand was not considered as merchandise, but came in as ballast, but of late years the Customs offices had insisted that both sand and clay must be entered as an 'ad valorem' duty paid." (32) Dr. Russell, of Gurteens, thought the sand came from Wales as ballast. Perhaps good quality sand was obtained locally, e.g. a fine sand was raised from the River Barrow off Rochestown, Glenmore, for the brickworks. (33)

Sand for the types of glass Gurteens later turned to would have been obtained locally; Cork got its bottle glass sand from Youghal or Tramore; and one local inhabitant said the sand came from a pit here. Wherever it came from the quay here made its transport comparatively easy.

The type of lead used in lead/flint glass was red lead. This was generally imported and at one time Newcastle was its chief source. However by 1800 Waterford glasshouse was importing its lead from Bristol. (34) The import figures for Waterford do not indicate the place to which the imports go, but it is interesting to note that no red lead was imported in the year ending March 1728; in the following year £2 value was imported; in the year ending March 1730 £9 2s. 0d. was imported from South Britain (this coincides with the first Gurteens advertisement); and in the following two years no red lead was imported. (35) These figures tend to confirm the fact that Gurteens soon stopped producing lead/flint glass, although I do not know if the amounts I have mentioned would be adequate for the glasshouse's production.

The potash, or pearlash or simply ashes (obtained by extracting the salts from wood ash in solution and subsequent evaporation) as it was usually called, an ingredient of lead glass,

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32. M. S. D. Westropp—p. 171.
33. Old Kilkenny Review. 1972—p. 45.
34. M. S. D. Wintropp—p. 173.
35. Ireland's Imports/Exports 1698—1829. In 1817 lead was £1 10s. 0d. per cwt. Lead, like potash, was a flux for the silicious material.

was also mostly obtained through England from abroad. (36) The potash was used as a flux for the silicious material to make it more susceptible to fusion. In the years ending March 1731 and 1732 the records show potash being imported from East Britain and Holland respectively. (37) Much of the potash used by Waterford glasshouse came from Quebec.

Saltpetre (common term for nitre) was used in lead/flint glass as a subsidiary flux sometimes or more usually to counteract the strong tinge of yellow left in the metal with the firing of the lead. (38) Later on Waterford glasshouse obtained much of their saltpetre from London. However during the time of the Gurteens glasshouse no saltpetre was imported (39) which would suggest it was obtained in Ireland.

After about 1730 when the glasshouse started making window glass and bottle glass their need for lead, potash and saltpetre ceased and instead ground chalk, carbonate of soda (a substitute for potash), and sulphate of soda was required. These ingredients would have been obtained in Ireland probably; for example, kelp (the ash of certain seaweeds) was used as a substitute for potash and this was largely obtained from Galway.

The glass tableware made at Gurteens was almost certainly plain uncut glass. The earliest notice "referring to actual cut glass in Ireland occurs in the year 1747" and "it was probably not until some years later that cut glass was produced in any quantity in Ireland. Diamond cut salts, cruets, etc. are advertised in 1752 as having been made in Mary's Lane glasshouse in Dublin." (40) The carving of arms, figures, crests, etc. on glass might have been carried out as these are referred to in a Mr. Joseph Martin's advertisement in 1735. This plain uncut glass, is the type described in contemporary advertisements as "double and single." The term "double flint" first appears in

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36. M. S. D. Wintropp—p. 173.
37. Potash was first imported in the year ending March 1731 (£100 0s. 0d.) value rising to a peak in the year ending March 1736 (£585 0s. 0d.). This was during the period when it is assumed that Gurteens stopped making lead/flint glass and would have been using kelp or some other locally obtained flux for its bottle and window glass production.
38. W. A. Thorpe—p. 16.
39. Except for £3 value in the year ending March 1732; 3s. 0d., 1738; £3 14s. 0d., 1739; £6 3s. 7d., 1740.
40. M. S. D. Westropp—p. 194.

1685 and probably indicates that the glass is thicker than was formerly possible. "The survival of single flint is due to the necessity of blowing soda-glass (the type used before the introduction of flint glass) thinly and the conservatism of the industry, and perhaps the public, in accepting the usually thicker flint glass." (41)

The phials which were produced were functional containers for medicine or perfumes and were 2" - 6" high and $\frac{3}{4}$ " - 2" in diameter.

The Crown window glass previously referred to is the type of glass referred to nowadays as bulls eye glass, and was made by blowing a balloon of glass onto a flat surface (giving the wave-like pattern of concentric circles) and finally snapping off the glass between it and the blowing-iron (giving the rough part in the centre).

Glass panes for hot houses were made and perhaps large glass bells for gardeners—these were made in Dublin in 1758.

Soon after I started work on the Gurteens glasshouse I had hoped to discover that glass was produced in this area between 1740 and 1783, when the Penrose family (43) established the Waterford glass factory.

At the moment evidence shows that the business here continued for only 11 years, yet the glasshouse made a big impact on the neighbourhood, e.g. local inhabitants know of its existence, it is still marked on Ordnance Survey maps as Glasshouse, and I have seen references well into the nineteenth century in the parish register of baptisms and deaths at the Glasshouse as distinct from Gurteens. (44)

The land in question passed through many hands during this time; e.g. the "glasshouse lands" were advertised to be let, without mention of the glasshouse, in November 1762 (45); and in 1760 George Penrose (presumably the co-founder of the Water-

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41. O. N. Wilkinson—p. 105-106.

42. M. S. D. Westropp—p. 46.

43. The family tree for the Penrose's shows that the co-founders, George and William Penrose, were not brothers—as always stated—but uncle (George, d. 1796) and nephew (William, b. 1745/6—d. 1799) or cousins (George, b. 1765—d. 1846). Society of Friends Library, Dublin.

44. Slieveroe Parish Register 1766-1799. St. Kieran's College, Kilkenny.

45. M. S. D. Westropp—p. 69.

ford glasshouse) leased an area here called the Range, and at another date an area described as the Gurteens Glasshouse. (46)

From 1738 the Dublin Society had been granting premiums to encourage various industries (in 1739 a letter was sent to the Society saying that the importing of bottles was costing £5,000 a year and that they might made to perfection in Ireland (47), and in June 1764 the Society offered £600 for the encouragement of Glass manufacture. (48) There was no application for the premium and there is no mention in the Society's proceedings to the manufacture of the types of glass that Gurteens made.

I have looked through some copies of the Dublin journal for the period without success, some contemporary letters, and so on. Possible sources of evidence are the Dublin Journals in the National Library, the Waterford Chronicle (1770-1779) in the British Museum, and contemporary letters if they exist of the Shiel and Snow families who lived either side of the glasshouse.

It would be very interesting if the roots of the Waterford glass factory could be found here in Co. Kilkenny.

NOTES :

46. Registry of Deeds, Henrietta Street, Dublin, Co. Kilkenny. Book 30.
47. P. 28 Letter to the Dublin Society on Improving their Fund and the Manufacturers in Ireland. S. Madden 1739.
48. Proceedings of the Dublin Society. Vol. 1—p. 54.

“Whereas several large Ash, Oak and Elm trees lately grown in the plantations and woods of Jenkinstown and Graig-acraw have been cut down and stolen: and from some circumstances there is reason to believe that are not (as yet) removed far out of this neighbourhood. I hereby promise to pay fifty guineas to any person that will discover where the whole parcel of (or a reward in proportion where any part) said trees are concealed, on conviction of the thieves and their accomplices”

—James Bryan, Jenkinstown.
Finns Leinster Journal, April 1801.