

A NEW INDUSTRY

Scottish glass production in the 17th and 18th centuries

Helen Spencer MClfA (10647), ScARF Project Manager, Society of Antiquaries of Scotland

Glass is not thought to have been made in Scotland from its raw materials until the turn of the 17th century, when the first patents were issued to manufacture glass using the new technology of coal-powered furnaces. While there is a lot of archival and documentary evidence for the first 150 years of glass manufacture, covered in Jill Turnbull's book *The Scottish Glass Industry 1610–1750*, there had been few archaeological investigations until recently.

Over the past few years, there has been the opportunity to study more of the archaeological evidence for this new industry, much of it taking place as part of community-led projects in East Lothian. The earliest glass furnace to be excavated in Scotland is that at Morison's Haven, which was excavated in 2005–2007 as part of a community archaeology project organised by East Lothian Council. This excavation found a flue dated by its design and archival evidence to 1697–1727. Over 1.5kg of glass waste was found on the site and visual examination suggested that it was waste from bottle making, which fitted with the archival evidence. However, scientific analysis in 2016 showed two different types of glass waste – one a high-quality, mixed-alkali glass made from barilla (imported soda), which would have been used to make vessels or plate glass, and a second mixed-alkali, high-strontium glass, which would have been used to make window glass.

In 2020, investigations started at a second glass furnace site a few miles away at Port Seton. This project was organised by the 1722 Waggonway Heritage group. For



A large lump of glass waste found at Port Seton. Credit: Helen Spencer



Inspecting some of the finds from one of the test pits in a garden in Port Seton. Credit: Helen Spencer

some years, they had been investigating the industrial heritage of Cockenzie and Port Seton (including excavating the earliest waggonway in Scotland and

building their own experimental salt pan). Plenty of evidence of waste glass had been found in some of their previous excavations, including a piece of an onion

bottle stamped with a dated seal of one of the co-owners of the glassworks – ‘Archibald Robertson 1730’. The group were keen to find out more about the original furnace, the site of which was now covered by housing, so they organised a socially distanced ‘Big Glassworks Dig’ and encouraged people to put test pits in their own gardens. Eight families volunteered to take part and a range of evidence was found, including crucible fragments, drop and drips of glass and plenty of burnt material and glass waste. This waste is now being scientifically analysed to find out more about the recipes used in the Port Seton Furnace.

Further excavations have also taken place at Seton Palace just a few miles inland, by the Seton Archaeology Society, who discovered the foundations of the original 17th-century palace. They found many fragments of window glass, likely to have been made in the nearby furnaces. Initial analysis of this glass shows that it is a type of high-lime, low-alkali glass but with higher levels of strontium than typical, suggesting that kelp was used as one of the ashes. This is particularly interesting as this composition has also been found recently in window glass from a number of other mid-17th-century Scottish sites, but not found in glass of similar date in England, where the use of kelp appears later. Could this be an innovative Scottish recipe making use of abundant local materials?

The 17th and early 18th centuries were a time of innovation and development in the Scottish glass industry. While documentary evidence tells the stories of the people and finances involved in the enterprises, the archaeological evidence from these community digs has and will continue to shed new light on the technologies and recipes used.



A chunk of glass waste found in one of the garden test pits. Credit: Helen Spencer

The group were keen to find out more about the original furnace, the site of which was now covered by housing, so they organised a socially distanced ‘Big Glassworks Dig’ and encouraged people to put test pits in their own gardens.



Excavating a test pit in the garden of a house close to where the original glass furnace was situated. Credit: Helen Spencer



Some pieces of glass waste from the Port Seton Big Garden Dig. Credit: Helen Spencer

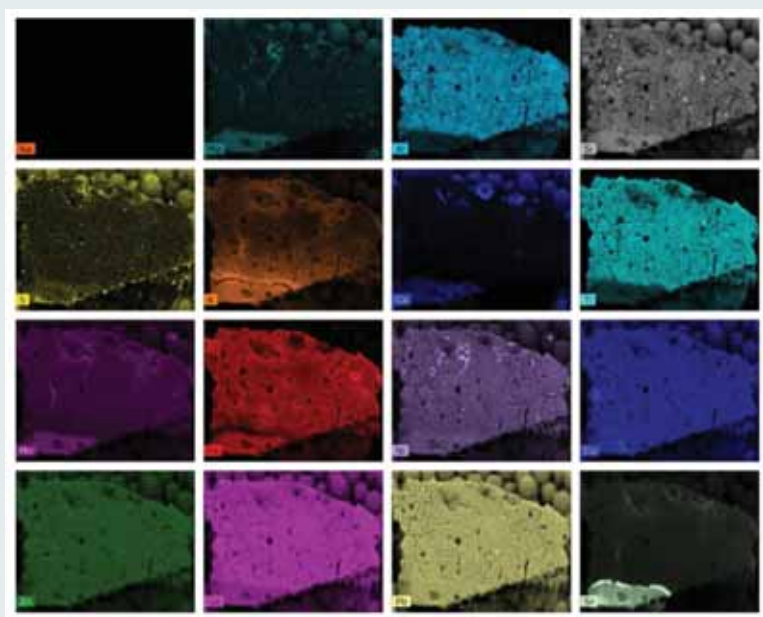


A glass seal on a bottle found and likely to be made at the Port Seton furnace – stamped with 'Arch Robertson 1730'. Credit: Helen Spencer



Map of the East Lothian coast showing some of the glass houses in operation. Map drawn by Jan Dunbar based on an original map of the Lothians by John Elphinstone made in 1744, plotting the sites of glassworks and sources of raw materials mentioned in the archives up to 1750

Find out more about the 1722 Waggonway Project at www.1722waggonway.co.uk.



A microXRF scan of the cross section of a piece of crucible found at the Morison's Haven glass furnace, showing the concentration of different elements. Credit: Helen Spencer



Helen Spencer

Helen is the Scottish Archaeological Research Framework Project Manager at the Society of Antiquaries of Scotland. She completed her PhD in Scottish medieval and post-medieval glass in 2020. With a background working in museums, conservation and archaeological science, she now also works as a freelance heritage consultant.