

## **The earliest glassworking in Roman London**

**John Shepherd (Islington Heritage Services)**

The large amount of evidence for glassworking in Roman London, especially the extensive activities which took place in the 2nd century Upper Walbrook Valley, are well known - further research on these assemblages will be published in the next two years. Less attention, however, has been paid to the earliest evidence for glassworking in the city. This paper will draw attention to the assemblages dating from the first 30 years of Roman occupation (c AD 50-80), highlighting in particular native bead production from Roman vessel glass at Gresham Street and the earliest evidence for glassblowing in Roman London at Regis House, evidence of perhaps the first glassblower at work in the country as a whole.

## **Romano-British glass working waste from Thearne, near Hull.**

**Richard Campbell**

This short paper describes the finds from Thearne, and how they relate to the manufacture of 1st to 2nd century Romano-British glass bangles.

The finds include over 180 pieces of Romano-British glass; amongst the finds are vessel fragments, Bangle fragments and melted pieces, and they include 36 unique pieces of twisted cords. These range from 2mm to 30mm in length, and are mostly bi-coloured; these types of cords were applied to the surface of Type 2 bangles.

Although Romano-British glass Bangles have been found before, evidence relating to their manufacture has not. The paper discusses possible reasons for the appearance of these fragments on this site and their relationship with the other glass found there.

## **Compositional investigation of the glass of John Thornton, glazier of the Great Window of York Minster**

**Jerzy Kunicki-Goldfinger and Ian Freestone**

Glass from three windows of York Minster has been analysed by energy dispersive X-ray analysis in the scanning electron microscope. The main focus was on John Thornton's Great East Window (1405-1408). Samples from a few panels of the St. William Window (c. 1414), another work by John Thornton, as well as of a much earlier window in the Chapter House (13th century) were analysed for comparison.

Compositional differentiation among medieval glasses suggests that within a single window they come from various sources and that various kinds of raw materials were used in their production. White and coloured medieval glasses differ significantly in composition.

## **New field work on the glass industry of the Weald**

**David Dungworth**

Documentary records of window glazing at Windsor and Westminster suggest that glass production took place around Chiddingfold, Surrey from the 13th century. This area acquired even greater significance due to the influx of French glassmakers in the late 16th century; they brought new technologies which laid the foundations for the rapid development of the British glass during the Industrial Revolution. Over a century of fieldwork has identified at least 40 glasshouses in the Weald (Surrey-Sussex border). This presentation will briefly review previous work and draw attention to a new project by the Surrey Archaeological Unit (funded by English Heritage).

## **A 17th-century Dublin crystal glasshouse**

**Colin Brain**

The development of British lead crystal glass in the 1670s completely transformed the luxury glass market and arguably helped to lay the foundations for the scientific and industrial revolutions that followed. We know from documents that the English patent for making what is assumed to be 'flint', or lead crystal glass, was granted to George Ravenscroft in 1674. The following year a similar patent was granted for 'flint' glass making in Dublin. This short paper discusses finds from a Dublin glasshouse identified with one of these patentees, Odacio, that tell us much about the early years of flint glass making and shed light on how the new glass making technology was developed and used.

## **New work on residues from urban glassworks excavations**

**David Dungworth**

The archaeological investigation of glassworking sites uses a variety of approaches, including the identification of features (such as furnaces) and associated artefacts and residues (such as glass). The examination of artefacts and residues plays an important role because it can provide information which is not readily obtainable in any other way. The application of scientific techniques (especially chemical analysis) can be used to determine which sorts of glass were manufactured, the fuel and types of raw materials used, and the temperatures achieved. Almost all current excavations of urban glassworks are now followed by the scientific examination of artefacts and residues. This paper will illustrate some of these applications to urban glassworks excavations with which the author has been associated, including sites in London, Bristol, Birmingham and Castleford producing tablewares, bottles and window glass. The paper will conclude with a reflection on current archaeological and scientific practice and call for greater dialogue between archaeologists and scientists.

## **A survey of the glass industry in Manchester and Salford**

**Peter Bone**

Manchester is frequently described as "The First Industrial City". Its reputation was built on cotton, engineering and trade. The city is not usually associated with the glass industry but in the 19th century it had a flint glass industry that employed as many workers as Birmingham and Stourbridge. As well as the flint glass produced by companies such as Derbyshire, Molineaux Webb and Percival Vickers it also produced the glass containers and industrial products needed by its growing and diverse manufacturing industries. By the 1960s the industry had gone, and little was known about the sites, the products or the processes used to produce glass in Manchester. The Percival Vickers site was excavated by Oxford Archaeology North and lost to an underground car park. There was concern that modern development could destroy other unidentified remains of the industry.

This paper is based on a survey carried out to characterise the companies involved, identify the glass-working sites, and record them on the Greater Manchester HER so that they can be protected and below ground remains investigated, when the opportunity arises, during future development in the city.

## **The glass industry of Birmingham**

**Mike Hodder (Birmingham City Council)**

Desk-based research undertaken ten years ago, stimulated by the English Heritage Monuments Protection Programme, drew attention to the significance of Birmingham's glass industry and included initial assessments of the archaeological potential of individual sites. The results of this ensured that these were properly considered in the planning process when affected by development proposals. Over the past two years, area excavation of three sites, Belmont, Belmont Row and Soho Glassworks, has tested previous assessments of survival. The results have led to consideration of strategies and priorities for management and investigation of Birmingham's glassworks in a development context.

## **Excavations at the site of the Walsh Walsh glass works at Lodge Road, Birmingham**

**Ray Holt**

An archaeological excavation on the site of the former Soho Glassworks at Lodge Road, Winson Green, Birmingham was carried out by Cotswold Archaeology in 2008 in advance of redevelopment of the site, following earlier desk-based assessment and building recording and archaeological evaluation by Birmingham Archaeology. The excavation revealed remains of the 19th-century glassworks including the original 1805 glass cone and furnace and associated structures including probable workshops. Some evidence for modification of the structure of the glass cone, probably when the second glass cone was constructed in 1886, was also identified. The remains of the glassworks

had been substantially truncated by the construction of the Ford Motor Company factory in 1952.

### **A regenerative revolution: the adoption of Siemens' furnace technology at the Powell and Ricketts glass works, Bristol**

**Ian Miller**

The widespread adoption of coal-fired furnaces by English glassmakers during the 17th century signalled the beginning of a revolution in glass manufacturing, particularly in terms of furnace design. Major advances were realised after the middle of the 19th century as this revolution gathered pace, and the limitations on output imposed by furnace and crucible size were addressed. Key technological breakthroughs in these fields were achieved by William and Frederic Siemens, including the introduction of regenerative furnaces, the replacement of the coal fire with a remote gas supply, and the development of the continuous tank furnace. A recent archaeological excavation of the Powell and Ricketts' glassworks on Avon Street, Bristol, exposed the physical remains of these innovations, the surviving fabric providing important evidence for the adoption and experimentation with regenerative technology. Despite being largely absent from the available company records, it was the successful application of this technology that ensured the survival of Powell and Ricketts as the only manufacturer of glass bottles in Bristol until the 1920s.

### **Recent work on the archaeology of the Dudley and Stourbridge glass industry**

**Pete Boland**

This review covers recent archaeological interventions and other initiatives relating to the physical remains of the glass industry of Stourbridge and district. Such work, much of it PPG 16 related, has covered a range of site types of various dates. These range from a 19th-century 'crib', producing novelty glass, to glass cones within the former Royal Doulton factory at Amblecote. Evolving furnace technology, apparently designed to facilitate air flows, has been observed which parallels the detail of furnaces recently excavated at the former Percival Vickers works in Manchester. Historic Landscape Characterisation (HLC) in the Stourbridge 'Glass Quarter' is being used to provide an evidence-base for a forthcoming Supplementary Planning Document (SPD) as part of Dudley Council's Local Development Framework. This will allow a strategic approach to the formulation of planning policies designed to protect and promote the distinctive glass heritage of the area.

### **Bottles, Bricks and Prohibition - the extraordinary site of Hightown Glassworks, Castleford, West Yorkshire**

**Anne Mortimer**

Castleford was the foremost centre for glass bottle production in the late 19th and early 20th centuries. The redevelopment of John Lumb's site at Hightown in 2007 provided an opportunity to excavate a glass works which originated (according to documentary sources) in the middle of the 19th century and continued to produce glass well into the mid 20th century. This period of industry activity was only broken by the construction of a Hoffmann brick kiln on the site c.1880. Castleford was a major player in the manufacturers of bricks in the late 19th century. The kiln and associated features were to influence all future development of the site.

A large amount of product was recovered during the excavations providing a fascinating insight into the tastes of the local population and markets abroad, namely the USA during the period of prohibition.