JORVIK is Working

Small Finds from Excavations at Coppergate, York 1976 to 1981

When, in 1981, the final spade-full was lifted from York Archaeological Trust's five year long excavation at 16-22 Coppergate it was already clear that the discoveries of Viking-Age material which had been made there were of international significance. The combination of a site in the heart of the Anglo-Scandinavian town, excellent preservation conditions and large-scale careful excavation resulted in an unparalleled collection of structural data and evidence for the work of many artisans and craftsmen.

The original Jorvik Viking Centre opened in 1984, barely three years after the excavation finished. During that time the objects discovered during excavation had been catalogued, conservation processes were underway and research programmes had been set up. It was possible to establish a broad picture of life in Viking-Age York and of the range of activities that had been carried out on the site, but the detail awaited further analysis.

This programme of study is now virtually complete with eight of the nine proposed reports on different types of objects already published – the last one, on leatherwork, to appear shortly. Specialists at the Trust and at research institutions around the country have gleaned an extraordinary wealth of detail from this collection. The range of activities which was being carried out on the site in the 200 years (c.850-1066) which constitute the main Viking-Age (or Anglo-Scandinavian) period in York is impressive.

These activities can be classified to some extent. They include domestic 'chores' such as food preparation, cooking, spinning, weaving, sewing, repairing leather shoes and garments as well as making simple household utensils such as spoons and spatulas from wood, bone or antler. Other crafts were more complex and involved specialised skills. The production of wooden bowls and cups using a pole lathe is one such example, the manufacture of composite combs from red deer antler another. Some activities must have been intermittent as and when the necessary raw materials were available. The

manufacture of jet and amber beads, finger rings and pendants falls into this category. Jet sources are found within 30-40 miles of York but amber would have to be brought from the Scandinavian homelands. When these raw materials were not available, fashion items and dress fittings could be made from bone or antler.

A higher level of skill and a greater investment in specialised tools and equipment would be needed for other activities. Evidence for iron working and the working of copper, lead, silver and gold was recovered in some quantities. Glass beads and glassy waste indicate that glass too was manufactured on site. (This in turn seems to have brought about experimentation with the glazing of pottery). These crafts required hearths, special equipment, a knowledge and understanding of how different materials behave at different temperatures and how they can be fashioned into various objects.

The evidence for all these activities takes the same general form. All stages of production are represented including raw material and waste material (for example, flakes of amber, lumps of iron-working slag, dribbles of lead, sawn bone, discarded parts of antler, cores from wooden bowl turning). Tools, including a full range of blacksmithing, wood-working and leather-making equipment, broken and discarded crucibles for melting glass and precious metals, moulds for forming metal objects, spindle whorls, fibre-processing combs, polishers for jet and amber, were all recovered. Part-made, incomplete objects which had broken or failed in the course of production were found across the full range of materials. These include beads which broke when holes were being drilled through them, cast metal brooches which did not come out of the moulds successfully, broken parts of composite combs and wooden bowls which split during production. Finally, there are examples of the successful products - the rings, beads, dress pins, needles, combs, shoes, cloth, belts, brooches, fittings, locks, keys, cups, bowls, spoons, knives....the list is almost endless.

One of the most fascinating aspects which has emerged from the research is the network of contacts which these craftsmen had built up. Certain objects can be traced to such far-flung destinations as Samarkand, the Red Sea and the Far East. These connections have all the charms of the exotic and unusual, but that the craftsmen of Jorvik had regular supplies of

raw material from Scandinavia, the Rhineland and northern Scotland is equally impressive. Scandinavia and the North Atlantic provided the source for the amber, the steatite (soapstone) for making bowls, moulds and other items, fine-grained stone for making sharpening stones (whetstones or hones) and occasional whale bone or walrus ivory. The Rhineland was the source of the lava used to make querns (grindstones for producing flour) and northern Scotland would have been an alternative source for steatite and stone for whetstones. The sea-faring habits and contacts with their homelands of the original Vikings settlers of the 9th century clearly remained part of life for their Anglicised descendants, in real commercial terms as well as in terms of kin-links and sentiment.

York's Anglo-Scandinavian residents had also built up an impressive network of contacts within Britain to secure other raw materials. Limestone, from outcrops near York, was used for a variety of purposes, including making small stone lamps, while Millstone Grit for hones and for querns, and lead and iron ores, would have been available in the Dales and elsewhere on the Pennines. Tin, copper, silver and gold came from further afield including, perhaps, Cornwall and Ireland. Wood, for bowls and cups, and red deer antler for combs, could have been obtained from the forests and countryside around York.

Two examples serve to illustrate the network of commercial contacts and complex manufacturing processes operating in the 10th century. These are the production of a lead-alloy disc brooch and an iron knife with wooden handle

To produce the copper-alloy disc brooch the craftsman needed to obtain his ores. This was probably done through a middle-man who had access to sources, probably in the Pennines, and who brought the ores to the towns. These ores had to be melted and processed. We know that almost all the crucibles used in this process in Anglo-Scandinavian York were made in Stamford, Lincolnshire, and imported, probably via the river systems, to York. Fuel was needed for his hearth - this was commonly charcoal which must have been produced in bulk, presumably out in the countryside. He needed a mould which had been carved with the decoration he required. In this case the decoration shows an awareness of the Scandinavian Jelling art style, although this is a poor representation of it. The motif would

have been worked out in advance; examples of Anglo-Scandinavian 'doodle pad's', in this case the flat surface available on a cattle shoulder blade, have been found showing sketches of animal motifs, presumably for application on other media. A variety of materials might have been used for the moulds themselves including steatite, re-used Roman tile or other sorts of softer stone. If the 'lost-wax' technique of casting was involved then a source of beeswax would also be needed. In this particular case, once the brooch was cast, its surface was immersed in molten silver to improve its appearance and to give the impression of greater value than it actually had. The brooch was then complete and ready for sale. In this particular case, however, the process was not a huge success: the decoration was quite crude, the quality of the casting was poor with casting bubbles visible and it has been suggested that it was rejected at this final stage - after all that work!

The iron knife is an equally impressive testament to the skills and contacts of York's craftsmen. In this case iron bars would have been formed as a result of the smelting process. There is little evidence for smelting in the town and the process was probably sited near the source of the ores. These bars or ingots would have been brought into the city, acquired by the smith, together with quantities of charcoal, and reworked in the blacksmith's workshop. An iron blade and tang would be produced through the process of heating, hammering and tempering, giving a steel cutting-edge with a high degree of hardness. The blade would then be sharpened, first probably on a rotary grindstone made from Pennine Millstone Grit and finished on a finer hone stone of Purple Phylite from sources in Shetland or Scandinavia. Wood for the handle was acquired, shaped and hollowed out to receive the tang. The wood was inlaid with decorative brass strips. These were made by acquiring the necessary non-ferrous ores, melting them in a crucible and producing thin strips which would be formed into the pattern on the handle. The handle would then be attached to the blade, and the knife completed. In this case these endeavours met with success and there is evidence that the knife was used and re-sharpened, leaving a slight S-shaped cutting edge.

This type of detailed information on processes involved in each of the crafts has been gleaned from studying both the objects and the waste products found on the site. Once the

stratigraphical analysis of the layers from which this data were recovered was completed, it was possible to reconstruct the position of each layer, and to look at the spatial relationships between the objects and the buildings, pits and backyards where artefacts were discarded or lost. This enabled researchers to determine which activities went on in each of the four properties excavated. It became clear that certain crafts were concentrated in one or two properties, in and around the buildings which served as workshops and dwellings; this was the case with the iron and the non-ferrous metal-working which were carried out in two adjacent properties. Other crafts were less obviously focussed; not suprisingly these were the more domestic crafts such as textile production, and the intermittent crafts such as making beads and finger rings from amber and jet. In these instances the evidence is more widely spread across the four properties, although even then some properties were more actively engaged in these activities than others. It became clear where a wooden cup and bowl maker once had his lathe because of the distribution of wooden cores; it could be shown where the iron needle maker sharpened the points of the needles on special whetstones or hone stones. All these details began to emerge from the detailed research which has taken place over the 20 years since excavation was completed.

The displays at JORVIK, both in the reconstruction and in the gallery, bring across the idea of this part of Anglo-Scandinavian York as a bustling, busy focus of a wide range of activities. It can, however, only ever be a snapshot of one late October afternoon in the late 10th century. Research has shown us that, not suprisingly, during the 200 years of Anglo-Scandinavian activity on the site there were changes. There were changes in the layout of the site and changes in the size and character of the buildings which occupied the properties. Similarly there were changes in the activities which took place on these properties. It is suggested from studying the range of objects stratified in the build-up of deposits within the floors of the buildings that, for example, one structure changed from use as a smithy to a place where leather was worked. In the best examples it is possible to see changes from one generation to the next.

The original Jorvik Viking Centre broke new ground and displayed an accurate but broad picture of life in Anglo-Scandinavian York. The results of research and analysis by scores of

researchers has allowed the Trust to add colour and depth and detail to this pictures in JORVIK. The displays are a tribute to the painstaking work by many people for almost two decades and the Trust will remain in their debt.

Ailsa Mainman