



## Further Notes on the Glasshouse Site at Kingswood, Delamere, Cheshire

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**I**N 1935 the late Professor Newstead concluded a report on the Glasshouse at Kingswood, Delamere<sup>1</sup>, by saying that further search was sorely needed on the site in order to determine its full nature and significance. For various reasons this was not found possible until 1947 when the writers who had assisted Professor Newstead in the 1935 excavations, sought permission from H.M. Forestry Commission to carry out further excavations.

Since 1935 the larch trees which cover the site had grown considerably, and the condition made by HM Forestry Commission when again granting permission, to limit the excavation to the digging of trenches not exceeding 18-ins. in width, and on no two sides of any tree was respected, and a complete examination was therefore not possible.

A general survey of the locality and site appears in the first report together with a map of the area based on the Ordnance Survey, Cheshire Sheet XXXII. S.E. The plan which accompanies the present report indicates the extent of both the 1935 and the 1947 excavations (fig. 1) from which it will be seen that the more recent examination of the site dealt with a much larger area than was previously explored. The cutting of long trenches and numerous trial holes made it possible to determine the extent of the glasshouse debris and proved that such material was limited to a comparatively small area of approximately 36 feet square, the centre of which had been struck in 1935. The nature of the finds in this area resembled in general that already

<sup>1</sup> *Chester and N. Wales Arch. Journal*, n.s., xxxiii.

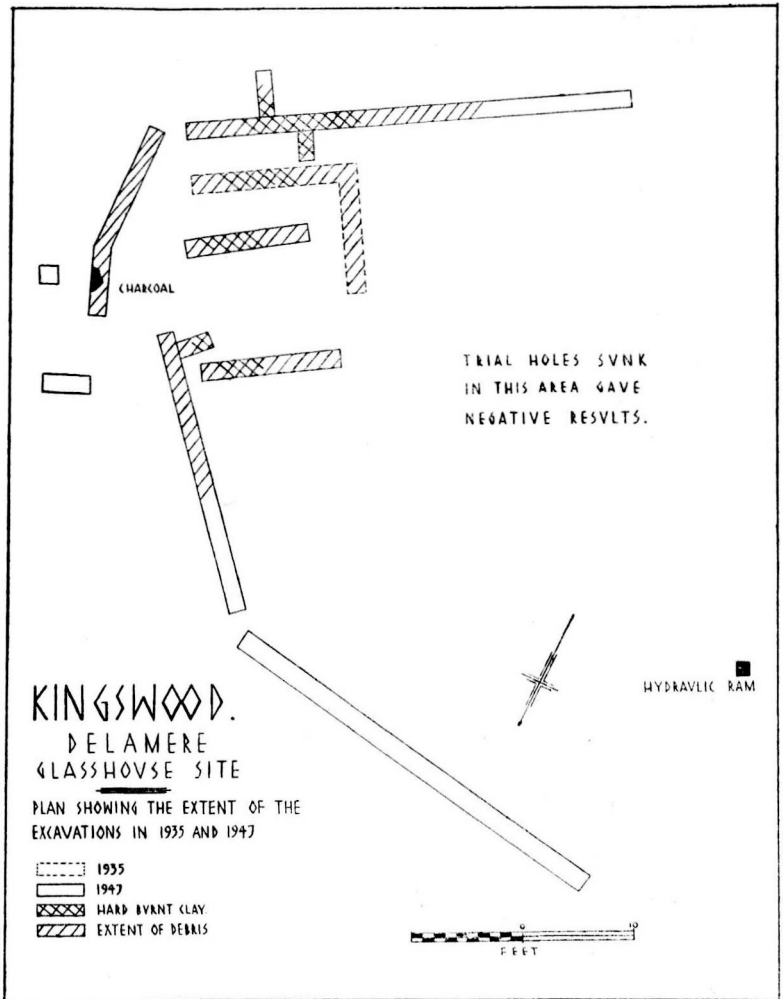


Fig. 1.

recorded but with the interesting and important addition of decorated cullet. No structural remains were found *in situ*. The trenches disclosed from 12 to 30 inches of soil containing debris from the glasshouse consisting of window glass, fragments of crucibles, stone coated with run glass,

a little pottery and a few bones. In places the bottom 18 inches was hard burnt clay containing similar debris (see fig. 1). There was nothing to show that the clay formed a floor *in situ*. A number of lumps of this clay had been smoothed and probably had formed part of the structure of the glasshouse and the absence of run glass on these lumps suggest they were not part of the floor. A small quantity of charcoal was found on the east side of the site. It lay on the virgin soil with the debris from the glasshouse dumped upon it. Elsewhere only very occasional small pieces of charcoal were found and the trial holes dotted over a wide area revealed none. No further evidence was forthcoming to explain the reason for the presence of the numerous fragments of hard grey freestone which had been coated on all sides with a deposit of molten glass. Several pieces of a gritty white substance were found, probably of sand in a state of incipient vitrification there being one piece on which a glass surface had already formed. For some reason, perhaps a broken crucible, this batch of glass may have been discarded soon after melting began. Red and yellow clinker was also found in small quantities.

As in the previous examination of the site only window glass was found, and this occurred in some quantity amongst the debris, examples of both pot metal and flashed glass being represented. Several colours were found and occurred in the following proportions to the total amount of window glass found :—Light amber 46%. Dark amber 5%. Blue pot metal (light and dark) 3%. Light green 20%. Dark rich green 6%. Red flashed glass 6%. Red pot metal 3%. Pale red (pink) 2%. Cloudy overfired glass 6%. Cullet (painted glass and glass with grozed edges) 3%. Examples of all colours appeared with selvaged edges which together with small broken circles of glass from the end of the blow pipe seemed to indicate that disc or spun glass had been made. No examples however of glass showing the bullion point (or bull's eye) were found though one would have expected specimens.

Evidence that glass was brought to the site as cullet was definitely established. Grozing was noticeable on six fragments and four fragments of painted glass were found (fig. 2).

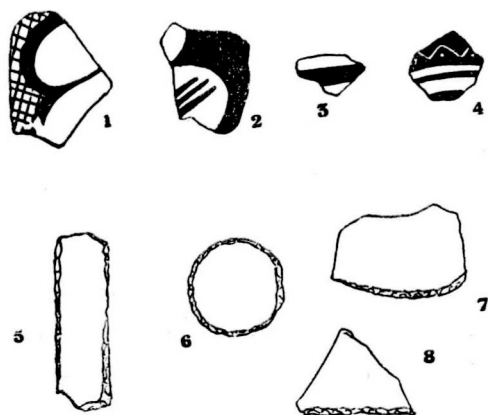


Fig. 2. †

Fig. 2. No. i.—viii.

- i. Fragment of pale green glass 2.7 mm. thick grozed on two sides. Painted with two loops and with cross hatching in dark brown enamel.
- ii. Fragment of dark amber (almost opaque) glass 2mm. thick grozed on two sides with two semi circular petal like compartments one of which is decorated with three strokes also in dark brown to black enamel.
- iii. Small fragment of opaque painted glass 2.8 mm. thick showing portion of a dark brown to black enamel line.
- iv. Fragment of clear glass 2.5 mm. thick painted with three bands in black enamel, on one of which is scored a zigzag line with dots in each compartment to one side.

- v. Rectangle of dark amber glass 3.2 mm. thick grozed on two sides. This may have formed part of a border or a lattice like 'fret' of a coat of arms.
- vi. Small circular piece of amber pot metal 3 mm. thick grozed into shape. Diameter 2.5 cm. This could have been used as an heraldic 'bezant'.
- vii. and viii. Fragments of clear and pale amber glass respectively having grozed edges (vii) 4 mm. thick. (viii) 3 mm. thick.



Fig. 3. 3

### CRUCIBLES.

Numerous fragments of crucibles were again found, some showing the rim and base. None admits of reconstruction. All rims are everted. Both inside and outside are coated usually with greenish or brown glaze and in one case with a thin layer of red glass. Three new slightly different rim sections were recorded (fig. 3).

As with the crucibles found in the 1935 excavation the rim diameters vary from 12 to 13 inches. The crucibles are made of the same hard grey clay.

## POTTERY.

Fragments of three vessels were found amongst the debris. The largest (fig. 4) appears to be that of a bowl of hard buff yellow clay, having a pinkish slip-like coating and hard baked to grey inside. There are traces of greenish yellow glaze on the lip. A neck fragment from another vessel, probably a pitcher, of similar clay is coated on the outside with yellow glaze of good quality.



Fig. 4.  $\frac{1}{2}$

Additional finds from the Glasshouse debris.

*Hone.*—9 cm. long and 4.5 cm. at broader end tapering to 2.5 cm. at the broken end. 1.6 cm. in thickness of hard fine grain micaceous freestone, smoothed on one face and three sides.

*Bones.*—Eighteen fragments of animal bones.

*Iron.*—A much rusted round iron bar 15 cm. long and originally 2 cm. diameter. This may have been part of a puntee.

*Flint.*—An irregularly shaped piece of grey flint with orange grey patches showing signs of secondary workings on one edge.. Triangular cross section. Length 4.5 cm. Width 3 cm.

#### CONCLUSION.

The limited extent of the debris from the glasshouse, the nature of the material, the absence of any large amount of charcoal, and the failure to locate any structural remains of the glasshouse *in situ* all seem to point to the one conclusion that the site explored represents an area on which material from a glasshouse has been dumped. Extensive search in the neighbourhood failed to locate the actual site, although the possibility that it may have been on the spot excavated cannot be completely overruled. The glasshouse from which the debris came made only window glass. The presence of both coloured and painted glass indicates that this was brought to the site as cullet, but eleven fragments of coloured glass with salvaged edges and the presence of red molten glass in one of the crucibles seem to indicate that coloured window glass was actually made on the site as well. Sand taken from the vicinity however contains a considerable amount of iron and would therefore be unsuitable for glass making.

The date of the glasshouse and of its destruction must still remain obscure. The fragments of painted cullet are certainly of 14th to 15th century date, whilst the use of wood fuel is unlikely after 1615 in a royal forest if the proclamation of James 1st forbidding its use in furnaces was being respected in Cheshire (State Papers Proc. Coll. No. 42). It is unlikely that the site will produce evidence other than that already obtained to establish a more exact dating.

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