ROMAN WINDOW GLASS
FROM VAGNARI ROMAN IMPERIAL ESTATE (ITALY)

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Since 2012, the University of Sheffield has been conducting excavations in the settlement (vicus) on the Roman imperial estate, the economic and administrative core of the estate. A wide range of cereal crops were grown and processed on the estate, and specialist industries practiced by the resident manpower included iron-working, lead processing, and tile-making, with a peak in production in the second century A.D. The exciting discovery in 2015 of a winery containing enormous ceramic wine vats with a capacity of 1000 litres and more indicates that vineyards also had been planted in the landscape.

The excavations in 2015 revealed a concentration of glass panes (2 kg in total) in one area (yellow rectangle on Fig. 1), indicating that there were paned windows here that may have belonged to a building predating the second century A.D. Given the archaeological rarity of this artefact class in Roman architecture in Italy, Roman glass specialist Prof. Caroline Jackson, University of Sheffield, supported by a grant from the Hugh Last and Donald Atkinson Funds, conducted a study of the glass in the storerooms of the Soprintendenza in July 2016. During her study period, more panes of window glass from the same complex were recovered in the excavation, and these also were studied. The students also benefited from a seminar on Roman glass given to them by Prof. Jackson.

Glass Assessment
Numerous fragments of window glass were examined. With the discovery of more window glass in well dated contexts during the excavation in 2016, it became clear that these panes date to a building phase of the early first century A.D. Several fragments could be pieced together to form distinct edges of what could be two or three panes. The glass is

Fig. 1 Plan of the excavated buildings in the vicus, 2012-2016

Fig. 2 One of the fragmentary panes of glass

Fig. 3 Another fragmentary pane of glass
greenish or slightly pinkish in colour, ranging in thickness from 2-5 mm (thickest at the edges). Reconstructed fragments suggest the panes were in excess of 40 cm in length in at least one dimension, which suggests these were rather large panes.

Each pane was formed by the ‘cast’ method, whereby fluid, molten glass was poured onto a flat, smooth surface, and then pulled or teased out at each corner using a metal implement as the glass cooled, to form rectangular panes. The tooling marks can be seen on the glass, especially at the edges, and each fragment has a characteristic rough and smooth face.

The glass appears to be typical blue-green glass, currently thought to be produced somewhere in the eastern Mediterranean, and then subsequently shaped elsewhere at local glass workshops. It is possible that the shaping was conducted somewhere near to the site, as the transport of large window panes would have been relatively risky.

The next step will be an analysis by SEM-EDS (major element analysis) which will determine the composition and allow a basic characterisation of the glass in the first instance. This may give an indication of the broad provenance of the glass and potentially show whether the partially reconstructed panes are from the same batch of glass.

Perspectives on Status
The excavations in 2016 have clarified that the structure in which these window panes were found dates to the early first century A.D., and it was in use until after A.D. 70 when it was dismantled and replaced by buildings of agricultural and industrial function. Not only the window panes, but also the floor coverings of white and grey marble retrieved here indicate that it must have been a relatively high-status structure. It was an enlargement and extension of a much earlier structure of the second century B.C. that came into imperial possession when the Vagnari estate was established.

The vicus buildings have only been partially excavated, but we intend in future research to pursue the evidence for a change in status of the vicus and its
facilities, from a relatively high-status settlement with glass windows and marble floors in the early first century A.D. to a village that intensified its focus on the economic output in industry and agriculture in the second and third centuries.

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Fig. 5 Prof. Caroline Jackson (left) examining window panes with Kayla Thiessen and Tom Watson, University of Sheffield students.