

Archaeological digs unearth 2 sites which “rewrite the understanding” of early wooden railways and salt pans

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Archaeologists and community members from the 1722 Waggonway Project returned to two sites where exploratory digs had been carried out, searching for remnants of the salt and coal industries which were the backbone of the country in the 17th and 18th centuries.

The latest phase of archaeology at both sites, has been described by leading experts as unique and of national importance.

The primary site was on the route of Scotland's earliest railway, the Tranent Waggonway, initially constructed in 1722 by William Dickson for the York Buildings Company, following their acquisition of the Winton Estates in 1719. Its function was to bring coal from the pits at Tranent to the Salt Pans at Cockenzie and Port Seton.

Aiming to find the original track-bed structure, the main trench revealed not one, but three wooden railways, each one lying immediately on top of the last, in an apparent multiple early upgrade over a short

period of time. Consisting of crudely cut timbers these upgrades included a change of gauge, from an initial 3ft 3 inches in the first phase to 4ft 0 inches in the second and third phases. Today's railways are 4ft 8½ inches. There is not another site like this in railway archaeology. Some sleeper and rail timber, including the remains of a timber 'raft' foundation structure used on ground which was clearly wet and boggy at the time, was found to be preserved or mineralised in situ, with the shape of these clearly visible in the ground, 1m beneath the present-day ground surface.

Additionally, and remarkably, research conducted by the Waggonway Project has allowed the group to pin down each phase of railway building to a particular date, with clusters of activity in the soon-to-be-published William Dickson Journals (1720-1745), the work diaries of a local timber wright, now appearing to relate to three distinct phases of railway construction. This data is currently being mapped for these clusters, which shows an initial build (phase 1) in 1722-25, a second (phase 2) in 1728-30, and a third (phase 3) in 1743-44. In each case the cluster of intensive activity lasts around 18 months.

In a further exciting post-excavation development, the Waggonway project team has established that each phase of construction came shortly after a change in the "tack" or lease of the waggonway. Phase 1, the initial build, was under the lease of John Horsley (York Buildings Company Agent) and Thomas Mathie (a local merchant). In 1728, the lease was taken on by William Adam, the renowned Scottish architect and entrepreneur, and the construction of phase 2 started less than a year later. Phase 3 was overseen by William Grant, another local merchant.

Of particular note in relation to William Adam's waggonway construction in 1728-1730, this phase was extremely well constructed, with well made cobbles forming the horse track between the rails. Also in this construction, a significant quantity of industrial waste material from the Port Seton Glassworks (1728-1736) was used in the packing material, an industry in which Adam had a stake.

This exciting link to the foremost architect of the time is of great significance.

A full archaeological report will be published once all post excavation work and research is complete.

Anthony Leslie Dawson, Early Railway Historian commented: "It was an absolute privilege to take part in the Waggonway excavation both as an archaeologist and an early railway historian; after all it's not every day that you see railway history being rewritten before your eyes. The site is of national significance: a three-phase wooden waggonway, stacked on top of the other, is without precedent.

"Whilst we know these railways had a limited life-span due to their method of construction, to see this process of continual replacement and upgrade – including a change of gauge – in the archaeological record is outstanding. The waggonway excavation has shown that these waggonways are far more complex than the single-phase structures previously excavated, and the survival of timber on site including joints, helps us further understand the construction of these early railways.

"The use of half round, perhaps crude materials, shows they could be built relatively quickly, and cheaply, perhaps with little in the way of skilled labour unlike later iron railways. The floating of the railway over soft ground using a raft formed from a "timber corduroy" is probably unique for such a railway: a technique used by the Romans and famously by George Stephenson in building the Liverpool &

Manchester Railway (1830), and one clearly understood by William Dickson who built the waggonway in 1722.

“It is rare that on a single site the history of a railway – reflecting in a microcosm national trends in railway technology – can be traced, from various phases of timber railway to an iron railway, itself of more than one phase. The 1722 waggonway project has, over only three days, added immensely to our knowledge about early wooden railways. It has rewritten our understanding of Scottish railway history. It is an immensely exciting project; the survival of wood on such a dry site hints tantalisingly at what may exist on wetter areas of the route.”

The secondary site was no less rewarding: a salt pan building in Cockenzie, originally constructed in 1630 by the Earl of Winton. The site surpassed all expectations, with not one but two phases of salt making being revealed, spanning a date range from 1630 through to the last phase of use around 1780, which is completely unique in Scotland.

The first structure, comprising of stone walls which supported the 9ft x 18ft iron brine-boiling pan were discovered in the centre of the building, with the later 18th century brick-built structure built on top. The later phase was incredibly well preserved, with deep ash pits and remnants of the iron grate, upon which the coal burned in the furnaces, surviving in amazing condition. Another remarkable discovery was the existence of huge doors in the sides and seaward end of the building, which are believed to be for bringing in materials for the operation and repair of the salt pan itself.

To complete the picture, evidence was found that the building had indeed been re-purposed as a tenement during the 19th century, which survived until the 1930s when it was largely demolished.

Joanna Hambly, SCAPE Trust and University of St Andrews said: “The 17th century pan house identified in the excavation is an incredibly rare survival of what was once a common sight around the Forth Estuary region. The only other example of this date comes from Bo’ness and is buried beneath a later building.

“The Cockenzie example is unprecedented in that it contains the archaeological evidence of technological developments in sea salt manufacturing over a 150-year period within one building. The original 17th century arrangement seems to be largely intact beneath a later 18th century brick pan hearth.

“It’s incredibly exciting to think that in future it may be possible to unpick these technological innovations in the archaeological record, rather than relying on documentary sources, which has been the case until now. The building is ideally located on the coastal path and John Muir Way and so there is enormous potential to conserve and interpret it to tell the story of Cockenzie’s industrial past.”

Gareth Jones, Conservation Architect said: “The dig at The Auld Kirk salt pan site has revealed so much more about the often-misunderstood salt industry than I had hoped for. For the first time we have revealed the sequences of operation for a Saltern through 200 years of use and beyond into its adaptation for residential use.

“We now have clear evidence for the practical operation of the pan house, including the adaptations to improve its efficiency as the technology developed and other demands for coal rose as steam power

emerged. It's been an amazing final phase of excavations and I am now looking forward to being able to present the site to the public with improved access and interpretation."

Alan Braby, Archaeologist and Illustrator said: "After a solid week of digging by our Waggonway members aided by local volunteers and visiting specialists, the amount of evidence we revealed in two separate locations is nothing short of astounding.

"At the salt pan site in Cockenzie, to disentangle the history of the building from construction in 1630, through the rebuilt furnace structure in the mid-18th century and through to the repurposing of it as a Victorian tenement that is only demolished in the 1930s is fantastic to say the least.

"Our other focus on the route of the 1722 waggonway exceeded all our wildest expectations, we knew we had the waggonway in previous trial trenches, but to discover it had 3 phases of rebuilding was certainly unexpected. The preservation of the remains was amazing, and already post excavation work is hinting at even more unexpected revelations with the involvement of William Adam as designer of the second phase."

Ed Bethune, Historian and Waggonway Group Chairman said: "The results of these excavations have surprised and amazed us all. To have uncovered the story behind two such rewarding and revealing sites is very satisfying and I would like to thank all the volunteers who took part.

"The archaeology here is second to none, and without doubt they are incredibly significant industrial sites which can shine a spotlight on the early-modern history of Scottish industry, not to mention the wider field of railway and salt making history.

"William Adam's involvement in particular is of huge importance and opens up further avenues of research which we are hopeful will yield yet more insight into these early industries.

"We are excited to see what further information these and other locations can yield in future digs - the potential to learn more here is outstanding."

Stephanie Leith, Heritage Officer, East Lothian Council said: "The Waggonway and salt pan house digs have been outstanding this year. The results exceeded all expectations, with exceptional preservation of the archaeology at both sites. The discovery of three sets of wooden railways from the early 18th century is a find of huge importance to our understanding of Scotland's earliest railway and how it developed. The team have put in an enormous amount of work and should be very proud of the results."

Photo credit: 1722 Waggonway Project