

Editorial contact:

A.M.Jervis, 7 Dymond Grove, Pitcorthie, Dunfermline, Fife, KY11 8DE;
tony.jervis@talktalk.net.

BURNS DOO

Keeping up the tradition, the Society's "Burns Doo" social gathering will be held at the Beechwood Scout Centre, Torbrex Lane, Newhouse, Stirling, FK7 9HQ, from 13:00 till 16:00 on Saturday 23 January 2016. Members are invited to provide a short talk on an industrial archaeological subject that has interested them during the past year.

However, it will be necessary to borrow a digital projector to interface with a laptop computer for the Burns Doo. Andrew Young (ajyou@btinternet.com) would like to hear from anyone who could provide such a projector or advise how a projector could be sourced. This may seem overkill, but he would rather have an embarrassment of riches than a paucity thereof.

KENNETPANS AND CHARLESTOWN

On 23 September SIHS members, past and present, congregated at Kennetpans, being careful to park cars so as not to offend the sensitivities of residents living next to the world's first commercial distillery "where distilling left the farmyards and became a true industry." We were met by Rory Macdonald, then Senior Heritage Management Officer at Historic Scotland, project manager of the Inner Forth Landscape Initiative scheme to stabilise the two-centuries-old buildings, much of which appeared to be held together by ivy and fresh air.



Kennetpans started, as the name suggests, as a salt-panning community formed by the monks of a local monastery. The monastery was closed down during the Reformation, but not before a local farming family, the Steins, had learnt the art of distilling from the friar. In the early years of the 18th century, John Stein diversified his farming activities into producing not

just the food but also the "water of life" and by the 1730s Kennetpans was the largest distillery in Scotland. His brother, James, opened another distillery at nearby Kilbagie, the duty paid by the two distilleries soon being greater than all the other annual land taxes in Scotland. A tramway was built from Kilbagie to a harbour at Kennetpans so that whisky could be exported and a canal also connected the two works. In 1786 John Stein ordered one of the first Boulton & Watt steam engines for Kennetpans distillery. The same year an increase in tax on whisky exported to England reduced sales there by two-thirds. Despite bribes (not proven when the case came to court) to the collector of excise, the Steins' distilleries were eventually bankrupted in 1788, but by 1795 the distilleries were back in business, having been bought from receivership at knock-down prices. When distilling ended at Kennetpans the buildings were modified for a number of other uses but had become ruinous by the early years of the 20th century.

Some preliminary work had been done in clearing vegetation both outside and within the building but the arrival of “cherry-pickers” (hydraulic elevated work platforms) was awaited so that ivy could be picked off the upper parts of the walls. Nevertheless, we were enabled to peer into a couple of the rooms to see some of the changes (insertion or blocking of windows and doors *etc.*) that had been made to internal and external walls over the years. In one room was the base of a kiln. The distillery had its own port on the Forth and timber posts still stood of the jetties against which ships moored. We then moved across the yard to the bonded warehouses that still stand, roofless but with their walls intact. Some windows still possessed bars to keep out thirsty vagrants wishing to break the bond. We marvelled at the huge area these covered and speculated about the possible locations of internal walls. Outside again grazing alpacas watched us as we enjoyed some sunshine and expansive views up and down the river.

If you would like to make a donation to the Kennetpans Trust, Charity Number SC042668, to enable them to continue the conservation and interpretation programme please either send a cheque (made out to Kennetpans Trust) or postal order to Kennetpans Trust, 3 The Cottages, Kennetpans, Clackmannan, FK10 4BW, or make a Bank transfer to Kennetpans Trust — Account No 10793288 — Sort Code 83-15-15.

From Kennetpans we drove in a convoy of cars to Charlestown to look at the well-known limekilns there. These, together with the village above, were originally built in the 1750s, six in number at first but eventually extended to fourteen, by the Charles Bruce, the 5th Earl of Elgin. He also built the adjacent harbour from which to export the limestone and coal found on his estate. Before the end of the century he had built a horse-drawn railway to bring coal from pits inland to the west and north of Dunfermline. Other waggonways were built in and around the village to serve the limestone quarries. We were enabled to go inside the kilns and examine at close quarters to multiple drawholes from which the quicklime was shovelled. The kilns are all connected by a passage along the rear (seen below in

Mark Watson’s photograph), which was also explored from end to end. Afterwards we were led on to the top of the kilns, where some vegetation clearance work was being carried out as part of the project to improve and conserve the industrial monuments in the Inner Forth area. One kiln had been partially emptied of rubbish that had collected or been thrown in over the 60 years since lime-burning had ceased, enabling the size of the kilns to be



better appreciated. The whole upper surface is now more akin to overgrown woodland than a working area and the writer found it impossible to recognise anything from earlier illicit wanderings when he was temporarily accommodated in the nearby Elgin Hotel in 1976.

SCOTTISH ENGINEERING HALL OF FAME CELEBRATES CREATOR OF EARLY INDUSTRIAL COMPLEX

New insights into a 16th-century engineering complex in West Fife will require the context of the industrial revolution to be re-assessed, claims the Scottish Engineering Hall of Fame Chairman, Gordon Masterton. "Sir George Bruce's application of technical ingenuity on a large scale to release the embedded value of natural resources was the mark of a true engineer. All the more astonishing given that his industrial complex in Culross demonstrated skills in civil, mechanical and mining engineering in 1580, some 150 years before the Industrial Revolution. His achievement deserves to be much better known and appreciated in Scotland's story. This was innovation and enterprise writ large — in the 16th century. We hope Sir George Bruce and the still surviving archaeological relics of his work get much more attention and protection now that he's inducted into the Scottish Engineering Hall of Fame.

"Scotland can rightly claim to be one of the most important seed beds of great engineering accomplishments ever since that early period. This demonstrates that engineering-inspired enterprise has been part of Scotland's DNA for nearly half a millennium."

The following article about Sir George Bruce (c1550-1625) is taken from "Scottish Engineering Hall of Fame", [engineeringhalloffame.org](http://www.engineeringhalloffame.org); viewed 7 December 2015, <http://www.engineeringhalloffame.org/profile-bruce.html>.

After the Reformation of 1560, the lands and properties of Culross Abbey passed to the Colville family. George Bruce's cousin, Alexander Colville, was appointed as Commendator of the Abbey. In 1575, he granted the 25 year-old George Bruce a lease to restore and operate the colliery at Culross, which by this time had fallen into disuse. Bruce was ostensibly chosen 'for his great knowledge and skill in machinery such like as no other man has in these days; and for his being the likeliest person to re-establish again the Colliery of Culross.'

It proved to be an inspired and benevolent act of nepotism! Bruce applied technology and know-how to undertake developments, at what became known as the Moat Pit, that were far in advance of anything else found in the UK at the time. The existing Castlehill Shaft stood on the coast a short distance to the west of Culross. The problem was that the coal seam it was exploiting led out under the River Forth. Bruce's solution was revolutionary. He constructed an artificial island in the River Forth to a height well above the high-water mark, and within its confines sank a shaft to a depth of 40ft. The new Moat Pit was connected underground with the existing Castlehill Shaft, and between them, probably on the foreshore, was a third shaft, from which water was drained.

Bruce hit upon the idea of draining the mine by the Egyptian wheel system. He fitted an Egyptian wheel and chain of buckets. The wheel was driven by three horses and consisted of an endless chain of 36 buckets. As 18 full buckets ascended, 18 empty buckets descended. The experiment was a complete success.

The three shafts made ventilation much better than was the norm at the time, and the Moat Pit's location in the river meant that ships could tie up alongside and be loaded with coal direct from the mouth of the shaft. In addition, he ran salt works which burned coal to evaporate sea water. In their day, Bruce's mines and salt works were probably the largest and certainly the most technically advanced such enterprise in Scotland.

Mining authorities flocked to Culross from all parts of the UK to inspect George Bruce's great undertakings, and wheels on the same model were erected at many collieries.

King James VI visited the works in 1617 and Sir George Bruce invited the King to visit one of his mines which tunnelled down beneath the sea bed. King James ventured into the tunnel and found

himself at a shaft where the coal was loaded onto ships. Alarmed to find himself surrounded by water at the top of the shaft, James accused Sir George of an attempt on his life and declared that the whole affair was an act of treason. It was only after Sir George pointed out the rowing boat and explained that one could either use that or return by the tunnel that James relaxed again — and took the option of the boat journey.

Bruce built a mansion house in Culross, using materials from his foreign trading. This building has subsequently become known as Culross Palace. He lavishly decorated the palace and the stunning painted ceilings, ornate features and panelling can still be seen today.

The Moat Pit continued to produce coal until the River Forth was struck by a major storm on 30 March 1625. This badly damaged most of the estuary's ports and salt pans, and engulfed the Moat Pit. George Bruce died 5 weeks later. It proved impossible to drain the complex of the sea water which had filled it, and the Moat Pit and Castlehill Pits were both abandoned.

IN AN AYRSHIRE CEMETERY

The depicted monument in Ayr Cemetery attracted Andrew Young's attention as it is in Venetian gothic style, which is quite unusual, as is the brickwork. It is possible that the brickwork reflects his use of engineering brick on some of his works, but this may just be looking for neat, logical patterns. The inscription reads,

James McNaughton of Smithfield
railway contractor.

Maker (1826-1832) of the first
Newtyle & Dundee railway
one of the earliest railways in Scotland
& of many other railways roads & bridges.
Born 2nd. Jan. 1802. Died 9 Feb 1890.

Also his wife Ellen Ferrier.
Born 2 Jan 1817. Died 4 June 1897

Andrew has not been able to locate Smithfield. There is a Smith Villa, built by the man who owned the mill at Alloway.



AND THE WINNER GOES TO THE WALRUS

The competitors for the 2015 Institution of Mechanical Engineers Award for the Conservation of an Industrial Heritage Artefact, recognising excellence in conservation of operational or static examples of engineering, were reduced to a shortlist of two: a Crosslé Mark III Motor Racing Car, submitted by National Museums Northern Ireland in partnership with the Crosslé Car Company; and the Grand Fountain Restoration, Paisley, a co-operation by Renfrewshire Council, Historic Scotland, Lost Art and Industrial Heritage Consulting Ltd.

In this two-horse race, on 23 October the walrus of Paisley Grand Fountain were declared the winner by a nose, pulling ahead of the Racing Car at the finish line.