

Early clockm

The origin of the mechanical clock is shrouded in the mists of antiquity. It is thought to have been developed in Central Europe in the 12th or 13th centuries, but nobody knows exactly where or by whom. What we do know is that this new technology—as revolutionary for its time as the computer has been for ours—quickly spread across Europe, under the auspices of the religious elite.

Timekeeping was important to the church, particularly in monasteries. The

Cornelius Yates

Cornelius Yates was one of the 'original petitioners', 16 London clockmakers who in 1622 petitioned the King for a charter of incorporation to set up a clockmakers guild in the city. The petition was unsuccessful and it wasn't until almost ten years later that the charter which resulted in the Worshipful Company of Clockmakers was eventually granted, as the result of a second petition. Loomes records Yates as working in London between 1614, when he married Elizabeth Willand at St Giles, Cripplegate, and 1622. Five years later Yates (now known as Yettis, Zettis, Zettors or even Zets) turns up in Edinburgh, or more accurately the adjacent burgh of Canongate, where this 'Inglischman watchemaker' was applying for admission to the Canongate Hammermen. His 'say' or test-piece was 'ane outred [finished] watche maid with his own hands'. He was admitted freeman of the Incorporation and the following year took as apprentice for six years George Banks. Nothing more is known about Yates, but in 1635 it was ordained 'that those apprentices who have not served furth their prenticeship and who after long absence from service procure or purchase their Master's discharges, are not to be admitted freeman except as strangers among whom are ... George Bankis prentice to Cornelius Zettis ...'

monastic day was typically divided into seven parts, or 'chapters'—vigils, lauds, terce and mass, sext, none, vespers and compline—and these had to be observed at particular times. Clocks quickly became important to mark the start of these services, a religious significance which survives to this day in the naming of the ring that marks the minutes and hours on a clock face, the *chapter ring*.

We don't know when the first clock



was set going in Scotland—written records from the period are very sparse indeed, many having been destroyed during the Reformation—but it was probably decades or more after its invention. Scotland, a primitive and backward place, was on the very edge of the known world at the time.

The earliest record I have been able to find of a clock in Scotland is in the Peebles burgh records for 1462, where

it was recorded that 'thai haf statut and ordaynit that quhat euir he be that byis, other within the burcgh or outoutht it, skynniss, woll, hyddis, or quhytt clath fra vnfreemen of pak sall be tane vjd to the knok' which, roughly translated, means that the burgh council had decided that anyone who bought skins, wool, hides or white cloth from 'unfreemen' (*ie* men who were not burgesses of Peebles) would have to pay a tax (or fine) of

makers of Scotland



Figures 1 and 2. St Giles Cathedral as it is today (main picture) without a clock dial and with a clock dial (inset) as it has appeared in the past.



new breed of clockmaker—clockmakers who had been trained *by* clockmakers as clockmakers—was beginning to emerge, men who made small clocks, domestic clocks, the sort of clock which would eventually be a normal constituent of every household in the land.

But I'm getting ahead of myself. Back in the late 15th/early 16th century the average blacksmith (perhaps all blacksmiths) did not have the basic technical knowledge to make a clock. They may have been coached by the nobility. In Peebles in 1494, for example, the burgh authorities paid 'Sir Patrick Stanhous ... for the keping of the knob' and in 1502 the Lord High Treasurer for Scotland gave 'Schir James Petegrew' £52 and 10 shillings for his 'expense command to Strivelin

Christopher Galloway

Many of the early clockmakers of Scotland came from outside the country: England and Northern Europe in the main. But one Scottish clockmaker appears to have done the reverse, and gone abroad to exercise his talents. Christopher Galloway (or Holloway) arrived in Moscow to work for Tsar Mikhail (the first of the Romanov dynasty) in 1621 and was active there until 1645. Galloway built the clock in St Saviour's Tower, the main entrance to the Kremlin from Red Square, the Russian equivalent of London's Big Ben. Little is known about Galloway, but speculation has it that he was descended from Christopher Galloway, a burgher of Haddington in the 16th century.

to divis ane knob' [expense of coming to Stirling to build a clock]. It is unlikely that these noblemen did any of the dirty work in making the clocks—that would be left to the blacksmiths—but it may have been their contacts on the Continent of Europe and in the church who instructed them in the intricacies of this brand new technology.

So what did these early blacksmith-clockmakers actually do, and how did they do it. An interesting record exists in the old accounts of the City of Edinburgh regarding some work done on the town clock by Robert Creitch (1552-1570) of Leith, then an adjacent burgh. Creitch was a lorimer (saddler, makers of harnesses, spurs *etc*) by trade, though by 1570 he was well enough know for his horological work that he was being described as a

sixpence which would go towards the upkeep of the town clock.

It is highly unlikely that this was the first clock in Scotland. It is simply the first for which we have written records, and these records go on to record the upkeep and replacement of the clock, and other clocks in the burgh, until 1662, when they record that 'nyne loads of lyme' were given to John Murray, wright [joiner] 'for his workmanship

done to the hourlick and knob [clock]'. No doubt the clock and its successors survived for many more years, but I have chosen the 1660s as marking the end of the 'early clockmakers' in Scotland. During these first two centuries of recorded clockmaking in Scotland, the men who made clocks were mainly blacksmith-trained, and the clocks they made were for public buildings. By the 1660s, however, a

At the townis command

The expensis maid upon the mending of the knok and half-hour, at the townis command, as eftir followis particularlie: -

Item, third day of Fabrvar 1554 [1554-55], gevin to ane writtar to writ the indentors betwixt Robert Creith and the comptur xvij^d

Item, the vj day of Febrvar 1555, gevin to thrie men for down taking of the knock furth of the steipill to the cart iij^s

Item, for ane clois cart to cary down to Leyth the greit wark of hir, iij^s iij^d

Item, to ane man to beir down her small wark in ane clois creill to Leyth, viij^d

Item, for twa faddom of ane greit cord to caus the greit bell streik the the hours quhen the knock was away, viij^d

Item, gevin to Robert Creith for upputting of ane littel knok in the tolbuith befor the lords, quhilk was borrowit fra Maister Johne Stevesoun, v^s

Item, gevin to Robert Creith quhilk be debursit for ane cut of ane greit tre to tow the pais cords of the knock of the hour and half hour, ij^s

Item, the xxv day of Febrvar, gevin to twa men for down takin of the half[hour] furth of the the steipill and beirring of it to the cart ij^s

Item, for ane clois cart to carry all the wark of the half-hour to Leyth iij^s

Item, to ane man to beir down the xj hammeris to Leyth iij^d

Item, the xvij day of March 1554, gevin for upbringing of the knok and half-hour agane fra Leyth, in twa clois carts, and to ane man to beir up the small wark of thame, vj^s viij^d

Item, to twa pynars to beir up the hail wark agane to the steipill ij^s

Item, for xij faddome of ane greit cord to beir the pais of the haill hour, ilk faddome vj^d summa vj^s

Item, for xj faddome of ane uthir cord to beir the pais of the half-hour, ilk faddome iij^d, summa iij^s viij^d

Item, gevin to Sampson, the painter, to lay the hail knok and half-hour all ouer with reid leid to keip thame fra rousting xlv^s

Item, for twa daillis to be ane dur and fluring to that pairt of the steipill quhair the knock stands, to save it fra weit and wynd vj^s viij^d

Item, for sawin of twa daillis, xx^d

Item, for naillis, viij^d

Item, to ane wrycht for aking of the dure and mending of the fluring, ij^s viij^d

Item, for twa crukkis, twa bands, ane loke and ane key to the said dur, to Johne Banx, iij^s

Item, the xxv day of Marche 1555, pay it to Robert Creith for his hail laubors of the knok and half-hour xxxiiij^{li}

Item, to the his servands in drinksilver, v^s

The hail sowme of the expensis maid on the knok and half-houre is xxxix^{li} v^s vj^d

'knokmaker' [clockmaker]. This account, in the quaint and often obscure language of the time, is reproduced in full on a panel ('At the townis command') on this page.

It shows that on 3rd February 1554/55 a solicitor ['ane writtar'] was paid 18 pence for drawing up a contract between the council and Robert Creitch for the work. Three days later three men were given three shillings for taking the clock down from the steeple and putting it in a cart, the hire of which was charged at three shillings and three pence. Only the 'greit wark' could be accommodated in the cart; the 'small wark' had to be taken separately, in a creel, to Creitch's workshop in Leith [Leyth].

The next item on the list is 'twa faddom' [two fathoms?] of rope to allow someone to strike the hours on the steeple bell while the clock was away being fixed. For this they paid eight pence.

At this point the account gets even more interesting—if a little confusing—for we find that Creitch was paid five shillings for the 'upputting of ane littel knok [small

clock]' in the council chamber. What exactly was the 'littel knok' they borrowed from John Stevenson? The lantern clock was still many years in the future, however Scotland had strong links with Europe, particularly France, and it is possible this was an early domestic clock brought over from there.

The next item is a payment of two shillings for wood for the barrels ['ane cut of an greit tre'] of the main movement and the 'half hour'. It therefore appears from this and some subsequent items that while the original movement struck the hours, at some later point a mechanism may have been attached which allowed it to strike on the half hour as well. This is my reading of it. If anyone has a better idea, I'd be delighted to hear from them.

We then find the half-hour work being taken from the steeple to a cart and in the cart to Leith, and a man paid to carry the hammers also to Leith.

From here on, money is being paid to bring the movement(s) back up to Edinburgh from Leith and reinstall them in the steeple. Cord is purchased to


carry both the weight [pais] for the main movement and for the half-hour work and 14 shillings is given to 'Samsoun, the painter' to paint the movement with red lead to keep it from rusting.

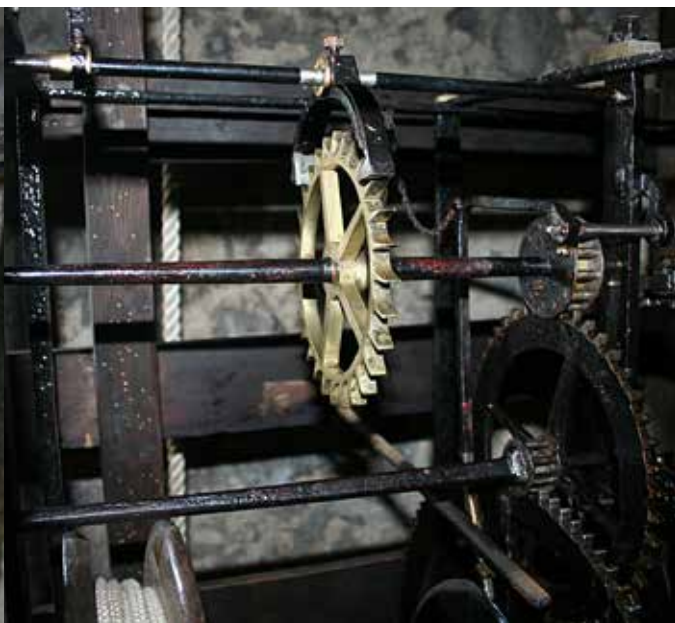
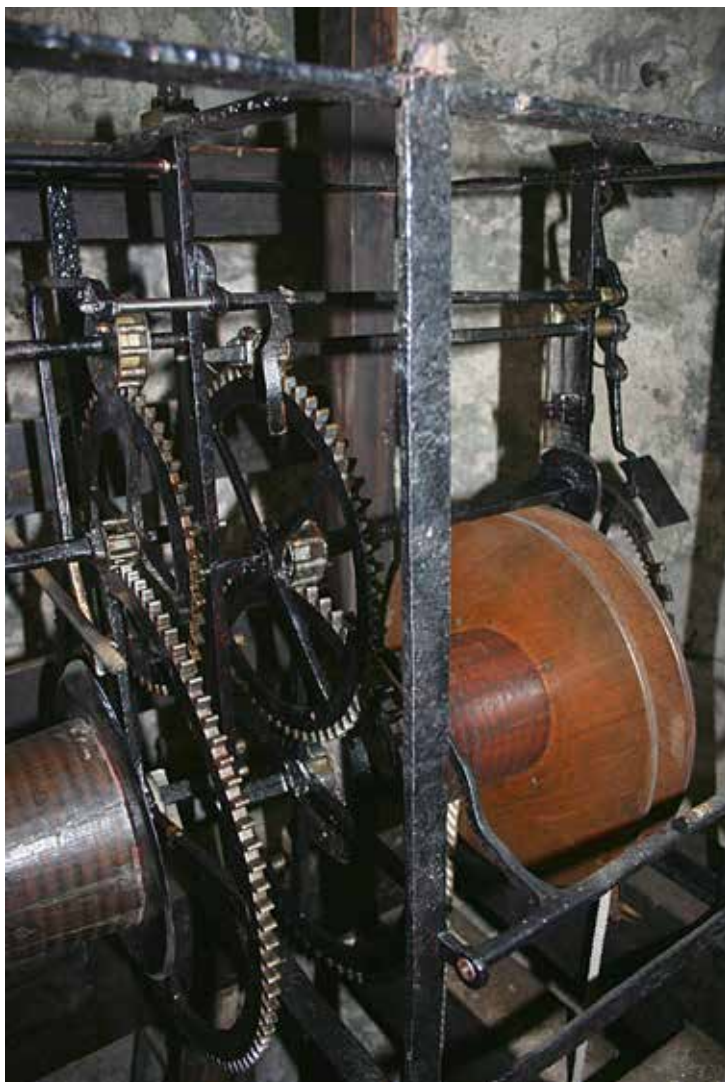
The next two items concern 'twa daillis'. At first sight this looks as if it may refer to two dials, but my feeling is that this clock did not show the time, merely striking the hour and the half hour (as, incidentally, does the clock currently installed in the steeple). The 'daillis' here seem to be wood for a door and flooring for the part of the steeple in which the movement was situated, 'to save it fra weit [wet] and wynd [wind]'. The door was to have a lock and key, provided for in the next item.

The final two items are the money paid to Creitch for servicing or mending the clock, as well as five shillings 'to his servands in drinksilver'. It was customary in these times to provide beer money for the maker's apprentices and journeymen.

These accounts show how complicated an operation it could be in the 16th century to repair a church clock. And how expensive. The final bill came to £39 5s 6d, equivalent to around £8000 today.

Creitch seems to have been a local man who came into clockmaking by a route unknown. As has been observed earlier, many of the early clockmakers of Scotland seem to have come into the trade via the blacksmith route. These include men like William Purves of Edinburgh (1539-1547), who made clocks for Edinburgh and Stirling, and David Kay of Craill (1556-1576), who made clocks for places as far afield as Dundee, Haddington and Glasgow. Others came as fully fledged clockmakers from abroad. Humphry Mills (1648-1695) was one such. He came to Scotland from England in the 1640s and made (or perhaps imported) lantern clocks. Nicolas Foucanote (1611-c1630) was another such 'foreigner'. A Frenchman, once clockmaker to King Henry IV or France and Navarre, he first appears in the Scottish records becoming a burgesse of Edinburgh on 2nd October 1611 (by right of his Scottish wife Elizabeth), a year after Henry IV was assassinated. By 1627 Foucanote was struggling to survive, his Royal pension, which he had received when he first arrived in Scotland, not having been paid since the death of Anne of Denmark (wife of James I of England and VI of Scotland) in 1619. By then Foucanote, 'in his old dayis' and 'evermore seikly' and having 'no mair power to travill [work] nor winne his living', was reduced to pleading with the authorities to restore his pension. By 1630 he was dead, his wife dying four years later. None of his clocks is known to have survived.

Another prominent early Scottish clockmaker was William Smith of Canongate (1604-1644), then an 



Figures 3 to 6. The church clock at Douglas in South Lanarkshire, thought to date from 1565. This is believed to be the 'oldest working clock in Scotland', perhaps the oldest working clock anywhere in the UK. As can be seen from the photographs, over the centuries it has been extensively updated. The anchor escapement and escape wheel are obviously not original and the barrels have been replaced.





independent burgh adjacent to Edinburgh. Smith was boxmaster of the Canongate Hammermen in 1627/28. Among his apprentices were Daniel Smith, son of John Smith, tailor, (possibly some relation) in 1619 and his nephew John Smith in 1628. There was also a James Smith in Edinburgh (1607-1660) who may have been related (two of his sons also became clockmakers). In 1638, William Smith became one of the signatories to the Covenant, a document which resonates down through Scottish history to this day. The Covenanters, acting in response to the introduction of the Anglican prayer book into the Scottish church, were a group who bound themselves to upholding the Presbyterian doctrine as the sole religion of Scotland. Interestingly, William and his nephew John Smith were 'essaymasters' in 1644 to one Philip Buknor 'Inglishman, watchmaker', who applied for admission to the Canongate hammerman and was admitted in December of that year. Brian Loomes records a Philip Buckner of London, but as this maker was apprenticed in 1660 and didn't receive his freedom until 1668 he can't have been the same man. Perhaps he was some relation; we simply don't know.

In this short summary I have mentioned

Figure 7 (above left). Print of the Netherbow gate, which had one of the first clocks in Edinburgh.

Figures 8 and 9 (above). The Canongate tolbooth clock as it was two centuries ago and as it is today.

Figure 9 (right). The Magdalen chapel, home of the Edinburgh Hammermen. Its clock was made by Andrew Brown (1664-1712).

a few of the men making clocks in Scotland in the first two centuries for which we have records. There were many more. Records are scarce and where they do exist are sparse. Some of the men mentioned in them in connection with clocks may not have been trained craftsmen at all, simply oiling, adjusting and generally looking after clocks in their care. But many more were properly trained blacksmith-clockmakers who made a real and lasting contribution of clockmaking in Scotland. 🍷

