BROAD SHEET No.2

Museum of the History of Science

£1.00

25TH NOVEMBER 2006 - 15TH APRIL 2007

Time and Place

BROAD SHEET communicates the work of the Museum of the History of Science, Oxford.

It is posted on the Museum's website, sold in the shop, and distributed to members of the mailing list, see www.mhs.ox.ac.uk.

English Country Clocks 1600-1840

This is the Museum's second exhibition organised in collaboration with the Antiquarian Horological Society: a single clock comes from the Museum's collection, while all the rest belong to members of the Society. They have been generously placed on loan for everyone to enjoy.

On this occasion the Society has turned away from the metropolis to seek out clocks with provincial origins, with the aim of covering as many English regions as possible. The result brings several questions into focus. How did a trade in local clocks made for local customers become established and evolve? Did regional styles emerge? How did technical and stylistic trends spread between regions and how were they modified locally? It quickly becomes clear that the clock is a powerful tool for studying how both technology and style not only spread but also are adapted to local circumstances.

This Broad Sheet presents the main themes of the exhibition and a selection of the clocks, while a full catalogue has been published by the Antiquarian Horological Society. The quotations illustrating the circumstances and customs of the places represented are quoted from Herman Moll, *A new description of England and Wales, with the adjacent islands* (London, 1724). The road maps come from John Owen, *Britannia Depicta, or Ogilby Improv'd* (London, 1751).

BROAD SHEET

Broad Sheet is produced by the
Museum of the History of Science, Oxford
Broad Street, Oxford OX1 3AZ
Tel +44(0)1865 277280 Fax +44(0)1865 277288
Web: www.mhs.ox.ac.uk Email: museum@mhs.ox.ac.uk

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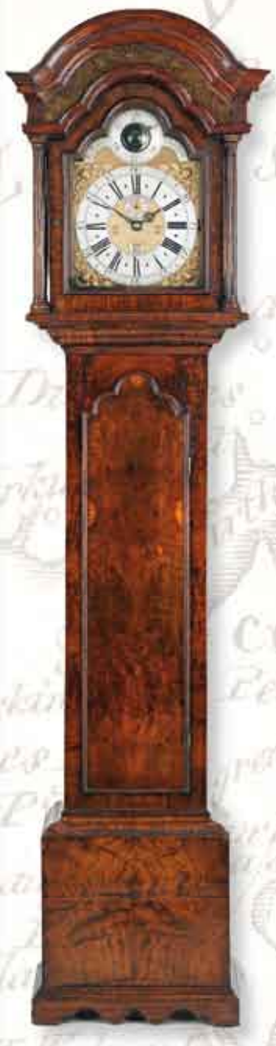
Ormskirk

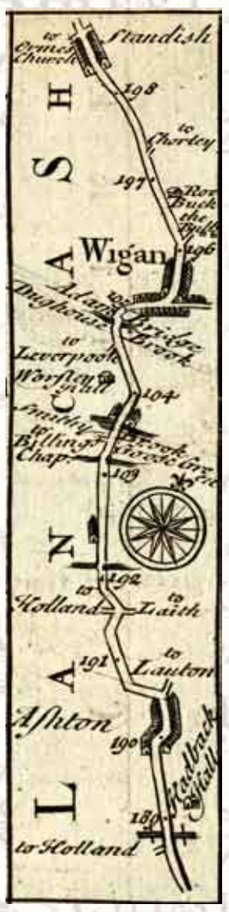
Local time: 11 minutes 36 seconds behind Greenwich
Longest summer day: 16 hours 53 minutes
Shortest winter day: 7 hours 7 minutes

'Inward from the Sea is Olmskirk … a fair Town near the Douglass, and has a good Market on Thursdays. … The Brook Douglass runs here with a still gentle Stream, near which, 'tis said, Arthur defeated the Saxons in a memorable Battel. Wiggan stands near the Rise of it … much inhabited by Brasiers, Pewterers, Dyers, Weavers of Rugs, &c. for Bedding, and is famous for the choicest Coal in England.'



Longcase clock
by John Taylor,
Ormskirk, c.1725

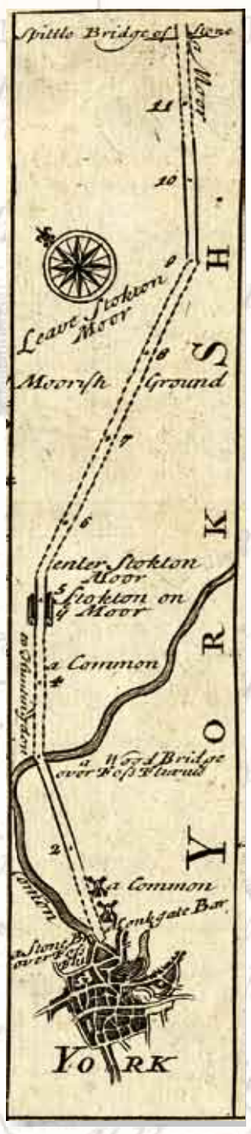
A month-going hour-striking longcase clock veneered in well-matched pollard oak having an unusual three-centred arched dial. This shape is reflected in the cornice, fretted frieze and also the top of the long door. The dial, with cherub's head spandrels, has a boldly engraved chapter ring. The moon's age is shown in the arch by a slender pointer against an engraved ring in the centre of which the moon's phase is indicated by a rotating sphere.



York

Local time: 4 minutes 20 seconds behind Greenwich
Longest summer day: 16 hours 58 minutes
Shortest winter day: 7 hours 2 minutes

'This City not only flourished under the Romans, but was also in great Reputation in succeeding Ages; and in the several Turns and Revolutions this Kingdom underwent under the Saxons, Danes, and Normans, has, though a Fellow-Sufferer with the rest, through the helping Hand and Countenance of the Nobility and Gentry, still preserved its ancient Lustre. It is at present fair, large, and beautiful, adorned with many splendid Buildings, both publick and private, very populous, much resorted to, and well inhabited by the Gentry, who in the Winter Season have their City Houses here, as others more southerly have at London, as also their Assemblies.'



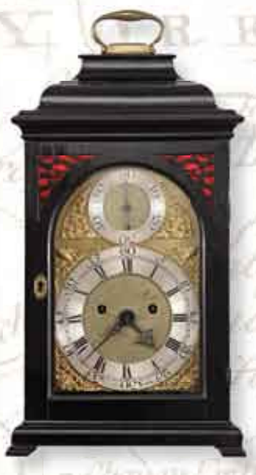


Table clock
by Henry Hindley,
York, c.1750

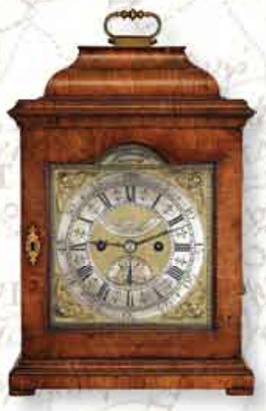
An ebony table clock with a two-train 8-day hour striking and quarter repeating movement. The case has an inverted bell top with carrying handle and full arch dial. The dial shows seconds in the arch and the silvered ring is divided into half seconds. The tall round-topped plate-frame movement is full of the maker's individualistic features such as the double baluster pillars, reversed fusees, dead-beat escapement and pendulum. The trains are reversed with going train on the left and striking and repeat work on the right.

Mansfield

Local time: 4 minutes 44 seconds behind Greenwich
Longest summer day: 16 hours 48 minutes
Shortest winter day: 7 hours 12 minutes

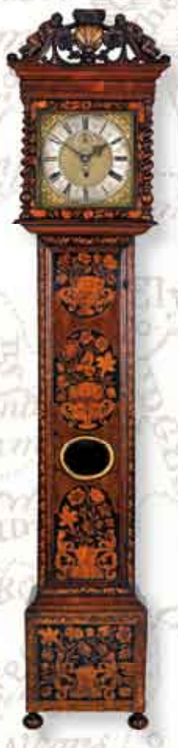
'Mansfield, in Sherwood-Forest, is a good large Town, and well built and inhabited, having a good malting Trade; and its Market, which is on Thursdays, is considerable for Corn, Cattle, Malt, Swine, and Provisions. Our Kings were wont formerly to retire hither for the Diversion of Hunting.'

Table clock
by John Glazebrook and
Thomas Hutchinson,
Mansfield, c.1730



A walnut-veneered table clock with 8-day hour-striking and quarter-repeating movement. The inverted-bell shape of the top follows London style; however the shape of the dial, with its small arch and day of the month sector, confirms its Midlands origin. The double signature is unusual as is its placing on the dial. The dial has cherub's head spandrels, which were in fashion in London some 40 years earlier. Unusually, the quarter-repeating work incorporates a fusee mounted on the backplate.

Stamford

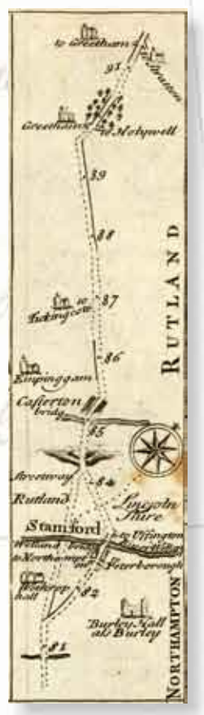


Local time: 1 minute 56 seconds behind Greenwich
Longest summer day: 16 hours 42 minutes
Shortest winter day: 7 hours 18 minutes

'In Edward III's Time, here was an University, which yet lasted not long, the Students returning again to Oxford, from whence, upon some Quarrel, they removed hither: However, there are still the Remains of Two Colleges, one call'd Black-Hall, the other Brazen-Nose; which last is older than that at Oxford; the Town nevertheless flourish'd still, till the Civil War between the Houses of York and Lancaster came on, which much impair'd it; yet it is still the fairest built and best compacted Town in the County, and finely seated for Pleasure and Convenience. … They have an annual Custom of baiting a mad Bull.'

Longcase clock
by John Watts,
Stamford, c.1690

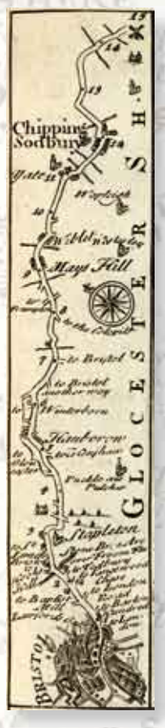
This 8-day three-train musical longcase clock has an exceptionally fine provincial floral marquetry case with walnut and ebony background. The case is surmounted with a fine carved partially-gilt cresting. The provincial origin of the case is indicated by the slightly unusual mouldings and bulbous twisted columns. The musical movement is very substantial and is contained in a large posted frame. It plays two tunes and the bells are struck by 15 hammers.



Bristol

Local time: 10 minutes 20 seconds behind Greenwich
Longest summer day: 16 hours 28 minutes
Shortest winter day: 7 hours 32 minutes

'It is a sweet and delightful City, adorned with many fair and delightful Edifices, wonderfully improved of late Years: Its Streets are so neatly order'd, that no Filth or Ordure is to be seen to annoy the Inhabitants: But its greatest Glory of all, and wherein she exceeds all other Cities and Places in England, is, she has provided Work-Houses to employ her Poor at her own Charge; so that as they have no Beggers of their own in their Streets, they will allow none from other Parts to come amongst them. They use no Carts, but Sledges in Bristol …'



Lantern clock,
unsigned,
Bristol, c.1650

A typical Bristol clock of 12-hour duration with hour striking on a large bell and controlled by countwheel. Characteristic frets, finials, feet and frame. The time is shown by a single hand against the Roman numerals and quarter-hour divisions. The engraving of the dial and details of the movement suggest an attribution to Thomas Browne of Bristol. Time is controlled by a single spoked balance wheel and verge escapement.

Cirencester

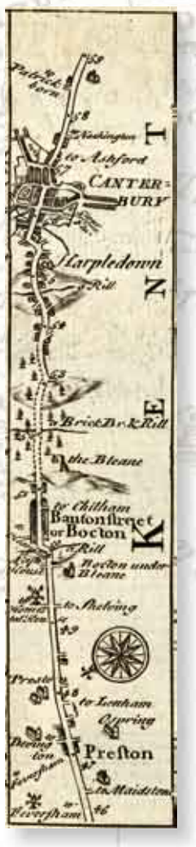
Local time: 7 minutes 56 seconds behind Greenwich
Longest summer day: 16 hours 31 minutes
Shortest winter day: 7 hours 29 minutes

'Cirencester on the Churn, over which it has a Bridge, and, in the Woulds, very commodious for Mills. It is a Place of great Antiquity, being the Caercori or Caerceri of the Britons, the Corinium of Ptolemy, and the Durocornovium of Antoninus. Its ruinous Walls yet to be seen, contain'd two Miles in Circuit; many Roman Coins, chequer'd Work Pavements, and engraven Marble Stones have been dug up here. In this Town the first forcible Opposition was made in 1641, upon the Lord Chandos executing the King's Commission of Array; and here the first Blood was drawn in the Revolution of 1688, the Lord Lovelace being attack'd with his Party for the Prince of Orange, and made a Prisoner. … As to the present State of Cirencester, it's a Borough, sends Members to Parliament, and has two weekly Markets, on Mondays chiefly for Corn, and on Fridays for Wool, Yarn, and Provisions.'

Wall clock
by John Coates,
Cirencester, c.1760

A basic 30-hour wall alarm clock in a simple oak case with shaped top and bracket and curved sides. The exposed square brass dial has a single hand and large alarm disc. The iron bar-frame movement has an anchor escapement and a long pendulum.

Canterbury

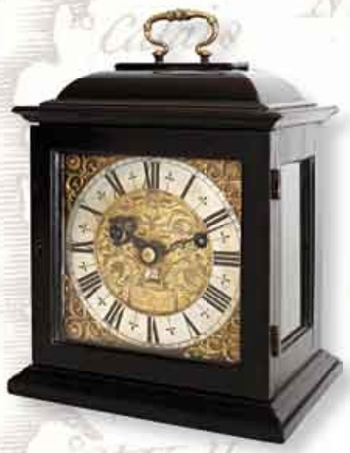


Local time: 4 minutes 20 seconds ahead of Greenwich
Longest summer day: 16 hours 26 minutes
Shortest winter day: 7 hours 34 minutes

'It has at present a great Trade, to which the Foreigners in it have contributed very much; They are partly Walloons, and partly French, the first being driven out of Artois and other Provinces of the Netherlands in the Time of Queen Elizabeth, settled here and brought with them the Art of weaving Silk into England, and this is now so much improved, that their Silks equal, if not exceed any foreign Silk whatsoever, and they send great Quantities of it to London. The Settlement of the French was since the Persecution of Lewis XIV. They are numerous and very industrious, live frugally, and maintain their own Poor: they join with the Wallooons in the Publick Service, and make a very great Congregation, having a large Place of Worship allowed them by the Cathedral.'

Table clock by Richard
Greenhill,
Canterbury, c.1685

An ebonised table clock with shallow dome and carrying handle, a floral engraved dial centre and unusual spandrels. The general appearance of the clock seems to follow London practice; however the 8-day hour striking movement is differently arranged with high winding squares, striking work on the right and a plain back plate.



17th Century

The beginning of English domestic clock making in volume dates from the late 16th century, with the emigration of Huguenot clock and watchmakers to London. The first English domestic clock was the lantern clock, made in London from c.1600 onwards. Some 30 years later lantern clocks appeared in Salisbury, with the work of the brothers John and Nicholas Snowe. Lantern clock making quickly spread to Bristol and other parts of south western England.

Following the introduction of the pendulum clock to London in 1658, the first examples by country makers working near to London appeared around 1670. Some 5 years later they were being made in Frome and Bristol. Many of these early provincial clocks were by makers trained in London, either relocating or simply returning home. Examples include Abraham Fromanteel in Newcastle, William Raynes in York and John Williamson in Leeds. Towards the end of the 17th century more clockmakers were learning their trade locally, such as George Newton of Seend in Wiltshire, Richard Howe of Dorchester, Richard Savage around Shrewsbury and Arthur Davies of Westleigh.

Lantern clock
by Richard Greenhill,
Ashford, c.1675

A large three-train 30-hour lantern clock striking the quarters on a peal of four bells and the hours on a large bell. The engraved dial has a silvered chapter ring engraved with hours, minutes and quarters; it has both hour and minute hands. Timekeeping is controlled by a short pendulum having an anchor-shaped bob mounted between the bars carrying the wheelwork.

Longcase clock
by William Raynes,
York, c.1678

An ebonised pine longcase clock with a 30-hour movement. The maker was apprenticed and worked in London before going to York and this clock clearly follows London fashions with its twisted columns, narrow elegant shape and bun feet. The octagonal shape of the lenticle showing the long pendulum is unusual. The dial is engraved with an open floral design and shows the day of the month above VI. The hour striking movement is between plates.

Wall clock by Nicholas Snowe,
Salisbury, 1638

A small, portable, weight-driven alarm clock. The single hand indicates the hours and the alarm time is read at the short end of the hand and set by rotating the alarm disc. The time is controlled by a simple bar balance and verge escapement. The alarm mechanism and bell are missing.

Longcase clock
by John Williamson,
Leeds, c.1695

Well-proportioned slender ebonised pine longcase from the late 17th century, prettily decorated, probably in the 19th century, with a scene following Boucher's 'Lovers in a Park' and with cherubs, flowers and rococo scrolling. The hood is surmounted with a boldly carved cresting and three ball finials. The well proportioned dial reveals the London origin of the maker.

Lantern clock
by George Newton,
Seend, 1677

A lantern clock of substantial construction typical of the Wiltshire makers with a posted-frame 30-hour movement. The dial engraving, when compared with the work of the Bristol makers, is somewhat naive; it bears the signature and date in the upper dial corners and has a single hand secured by a shaped brass nut.

Longcase clock movement
by Lawrence Debnam,
Frome, 1675

A West Country clock with an unusual 8-day posted-frame movement, originally made for a floor-standing longcase in which it would have stood on the four spike feet. The brass dial has cherub's head spandrels and floral engraved centre with scrolling signature. The two hands show the time on a silvered chapter ring. The timekeeping is controlled by a long pendulum and anchor escapement.

Musical clock movement
by Arthur Davis,
Westleigh, c.1685

A West Country musical 30-hour striking clock movement, well illustrating this maker's idiosyncratic design. The wheelwork is contained within a double-plate frame with going and striking in the front compartment and the musical work in the rear. The dial centre engraving depicts flowers springing from a vase against a vertically-hatched background.

1700-1750

An explosion in English country clockmaking took place during the 18th century and occurred in every part of the country. The country clockmaker, now more often than not locally trained, had the opportunity to become a respected and educated member of his community. If successful – like the Archers of Stow or the Ogden family of Yorkshire – an established business could be continued by further generations, with related members working in various towns within a region. The country gentleman no longer had to look to London for a special clock; a local clockmaker was sometimes able to provide fine workmanship nearer to home. Although the individuality expressed in work of the early makers naturally merged into local and then regional styles, these styles remain recognisable today.

Wall clock
by Samuel Day,
Saffron Walden, c.1735

A weight-driven wall clock with plain rectangular bracketed pine case painted brown. The well-made plate-frame 30-hour timepiece movement has pull hour-repeating work utilising a rack and snail; the pull cord hangs below the case. The most unusual escapement has a small anchor embracing 3¼ of the 15 escape wheel teeth and a pivoted short bob pendulum. The single-handed dial has a boldly-engraved chapter ring, matted centre and helmeted head spandrels.

Longcase clock
by Thomas Ogden,
Halifax, c.1735

A 30-hour striking clock in a simple but pleasing oak longcase with a bull's eye lenticle. The square dial with hour and minute hands has a typical silvered chapter ring with decorative half-hour but no quarter-hour markers. The matted dial centre has a penny moon showing the phases of the moon, while the age is shown in a hexagonal opening to the right. The day of the month is shown in a pentagonal opening above VI. The plate-frame movement has arched plates and anchor escapement.

Longcase clock
by William Tipling,
Leeds, c.1700

An 8-day hour-striking longcase movement with square dial closely following London fashions having cherub and foliage spandrels and matted centre. There is cup and ring decoration surrounding a Tudor rose at the centre and the hour hand has a delicately fretted boss which complements the fine design of the hour and minute hands. An unusual feature is the sunk seconds ring.

Lantern clock
by John Smorthwait,
Colchester, c.1715

A 30-hour lantern clock striking the hours. This East Anglian clock well shows the difference from contemporary examples from the West Country. The corner pillars of the posted frame movement are built up from separate pillars, finials and feet screwed together to sandwich the top and bottom plates instead of being in one piece. The anchor escapement movement follows well-established practice; however the steelwork is exceptionally well finished.

Table clock
by John Wrench,
Chester, c.1725

A table clock with a case veneered in walnut with partially-gilt mouldings and a deeply-engraved dial with a silvered disc showing 4 phases of the moon in the arch. It does not strike the hours but a cord coming out through the right side of the case can be pulled to repeat the time to the nearest quarter on two bells, the hour on the large bell followed by ting-tang quarters on the two bells. Primarily for use in a bedroom.

Longcase clock
by James Woolley,
Codnor, c.1730

A square-dialled 8-day striking clock in well-proportioned ebonised longcase. The hood has a domed, bold cornice, fretted frieze and attached columns with gilded caps and bases. The long door has a square top and brass-framed lenticle. The dial is boldly engraved with decorative half-hour markers and day of the month ring. The plate-frame rack-striking movement has nicely-finished steelwork and an hour-striking trip repeat lever with pulley work to be operated from a room above or below.

Longcase clock
by John Gilkes,
north Oxfordshire, c.1740

A classic example of a 30-hour longcase clock from the north Oxfordshire-Warwickshire border area. The movement strikes the hours and the dial has a wriggle-work-finished centre. The clock hangs from a hook in the back of the case. These movements are also commonly found without cases.

1750-1800

The growth of the Industrial Revolution had its effect on clockmaking. New methods of manufacture started in localities where the essential raw materials, fuel and power were readily available, such as Birmingham and other locations in the Midlands. This led to a supply of ready-made, or partially-made, components and movements, together with finished painted dials, available by carrier to all parts of the country. The number of clockmakers increased further to meet the needs of prospective customers in the newly-created middle and wealthy classes.

The increasing import of mahogany and other exotic timbers led to the establishment of furniture companies and they soon became important makers of clock cases. Complex clocks, such as that by Jonas Barber, in grand mahogany cases were produced by makers in the cities and ports of the Industrial Revolution, not those in the home counties.

There has always been an association of scientists with clockmakers; Thomas Tompion and Robert Hooke are perhaps the best known. Most of this association happened in London but the new wealthy industrialists of the Midlands and the North were also able to indulge their scientific interests and employ the most talented clockmakers. Examples include the clockmaker Henry Hindley in York, an inventive and accomplished instrument maker; Samuel Deacon in Leicestershire, who was tutored by the Reverend William Ludlam, a mathematician skilled in practical mechanics and astronomy; and John Whitehurst of Derby, member of the Lunar Society, a clockmaker, instrument maker and geologist.

Wall clock
by John Huggin,
Ashwellthorpe, c.1760

An East Anglian 30-hour hooded alarm clock in an oak and pine case with ornamental bracket. The single-handed arch dial has rococo spandrels, silvered chapter ring, alarm disc and matted centre. The plate frame movement has an anchor escapement and a long pendulum.

Wall clock
by Porthouse,
Darlington, c.1790

A drumhead mahogany striking wall clock. The finely made and well-detailed case has carved mouldings around the circular engraved brass dial and quarter fluted columns on either side of the trunk. The conventional 8-day movement has a trip hour-repeat and a cord-operated lever, which silences the striking bell but allows the train to run. The folding pendulum is unusual.

Longcase clock by John Greaves,
Newcastle, c.1750

A walnut-veneered longcase clock with an 8-day hour-striking movement. The case is of uncomplicated design with restrained cornice and mouldings in cross-grained walnut. The dial has, in the arch, an engraved disc showing the phases of the moon surrounded by an engraved ring showing internally the time of high tide, probably intended for use as a universal tide dial with a moveable hand, and externally the age of the moon. The plate frame movement is of conventional design.

Wall clock
by Thomas Cox,
Thornbury, c.1760

A wall alarm clock in a simple 'salt box' case, having a single handed dial with rococo spandrels, silvered chapter ring, matted centre and silvered alarm disc. The plate-frame timepiece movement is well made and has an anchor escapement and a long pendulum. The 30-hour alarm mechanism is mounted between the plates.

Longcase clock
by Thomas Lister senior,
Luddenden, c.1760

An 8-day striking longcase clock in oak case with cornice and caddy top. The hood has red-fabric-backed sound frets and turned mahogany columns; the trunk has recessed quarter columns and the long door a shaped top. The rolling moon in the arch dial shows the age and phase. The silvered chapter ring has decorative half-hour markers and the silvered centre shows seconds and the date through a sector above VI. The plate-frame movement has an anchor escapement and inside countwheel striking.

Longcase clock
by Jonas Barber junior,
Winster, 1763

An 8-day mahogany chiming and musical longcase clock. The case is a fine example of the Lancashire Chippendale style. The large arch dial has, in the centre, subsidiary dials showing the month and the day of the week. The year is indicated in an aperture in the left subsidiary. The arch contains a rolling moon disc, graduated to show the age of the moon and time of high water at Hull, but with a moveable pointer for use as a universal tide dial. The substantial 3-train striking and chiming movement has trip repeat of the hour.

Longcase clock
by Thomas Lindley/Samuel Deacon,
Leicester, 1775

A massive 4-train 8-day musical chiming and striking longcase clock having a sturdily constructed blue-painted and gilt case. The clock strikes the hours, chimes the quarters and at 3, 6, 9 and 12 o'clock plays each day one of 7 tunes three times. The exquisite heavy plate-frame movement has a music cylinder at the top with 14 bells, 8 quarter and 14 music hammers. The front plate is engraved 'Made Sepr Octr Novr 1775 SD'. The anchor escapement has a heavy pendulum with beat adjustment.

19th Century

At the start of the 19th century the individual making of clocks was already on the path to long decline. Clockmakers gradually became retailers, selling, repairing and maintaining clocks but making very few from scratch. All the parts of a longcase clock could be bought in and finished. For domestic purposes brass dials were now almost entirely replaced by painted dials ordered in from a variety of factories. These dials became larger and more colourful.

Initially the longcase clock was produced in increasing numbers but it lost its slender proportions, becoming ever wider. The weight-driven wall alarm clock running for just 30 hours was replaced by the English dial clock, spring-driven, running for 8-days but made in factories and bought in to order. They found widespread use in shops, offices, factories, schools and of course the railways. The growth of the railways led to the standardisation of time across the country. No timetable could cope with each local time being different by a number of minutes from London time. Less expensive, mass-produced clocks were increasingly imported from abroad, particularly Germany, France and America. To survive in business the country clockmaker had no option but to adapt to the changes.

Longcase clock
by Caleb Boney,
Padstow, c.1810

An 8-day astronomical clock in a well-detailed red-walnut longcase. The astronomical dial and wheelwork is derived from James Ferguson's *Select Mechanical Exercises*, 1773. The outer 24-hour ring of the dial is static and read by a hand fixed to the inner 29½ day rotating lunar ring; this ring is read by the moon pointer, which itself rotates to show the moon's phase, and is mounted on the central rotating earth disc. The inner rotating disc is engraved with the annual calendar, the sun's place in the zodiac, the positions of fixed stars and other astronomical information.

Clock movement
by Benjamin Harlow,
Lane End, c.1825

A mill clock movement. This 8-day clock was used to record, on the top three dials, the total time that a mill wheel or mill engine ran during a period of four six-day weeks, including days and nights, based on a fixed engine speed. This could then be subtracted from the actual time shown in the bottom dial and the 'down time' deducted.

Longcase clock
by Robert Apps,
Battle, c.1800

A 30-hour striking longcase clock. The oak case is of a simple design with a flat top, attached hood columns and a square-topped long door. The white-painted dial has painted spandrels, Arabic hour numerals and a semi-circular date aperture. The plate-frame movement has the maker's recognisable features, including adjustable anchor pallets and his striking work incorporating a large vertically-mounted fly rotating within the bell.

Longcase clock
by John Whitehurst II,
Derby, c.1800

An 8-day noctuary clock. A noctuary was used principally to monitor a watchman's rounds. The boldly-engraved silvered dial is numbered every 15 minutes to correspond with each one of the 48 pins set in the central revolving disc; these pins were to have been depressed in turn by a lever (missing) projecting through the hole below XII, operated from outside the clock, every quarter of an hour. The neat oak case is typical of a Midlands domestic clock of the period.

Table clock
by Booth,
Pontefract, c.1800

A small mahogany table clock with an 8-day striking movement. The case has a moulded top, carrying handle and side sound frets. The white dial has the four seasons painted in the spandrels and a figure of Justice in the arch. The small plate-frame movement has chain fusees and a verge escapement with a bob pendulum.

Wall clock
by Whitehurst,
Derby, c.1834

An 8-day hour-striking wall clock. This utilitarian clock with its highly legible white-painted iron dial was probably intended for commercial and domestic staff use. The plate-frame movement is of good quality and has an anchor escapement with a ¼-second pendulum and countwheel striking.

Longcase clock movement
by Henry Ward,
Blandford, c.1808

The large skeletonised movement of a month-going equation regulator clock in a mahogany case with triangular pediment and glazed trunk door. The square silvered dial indicates, at the top, mean time minutes and the variation of solar time; seconds and hours are shown in the lower two dials. The movement is exquisitely made with large finely-cut wheels. The kidney-shaped cam at the top controls solar time. The pallets for the pin-wheel escapement are mounted on the rod of the lever-compensated pendulum. They protrude into the clock movement to engage with pins on the escape wheel.