

The BBC's First Master Clock

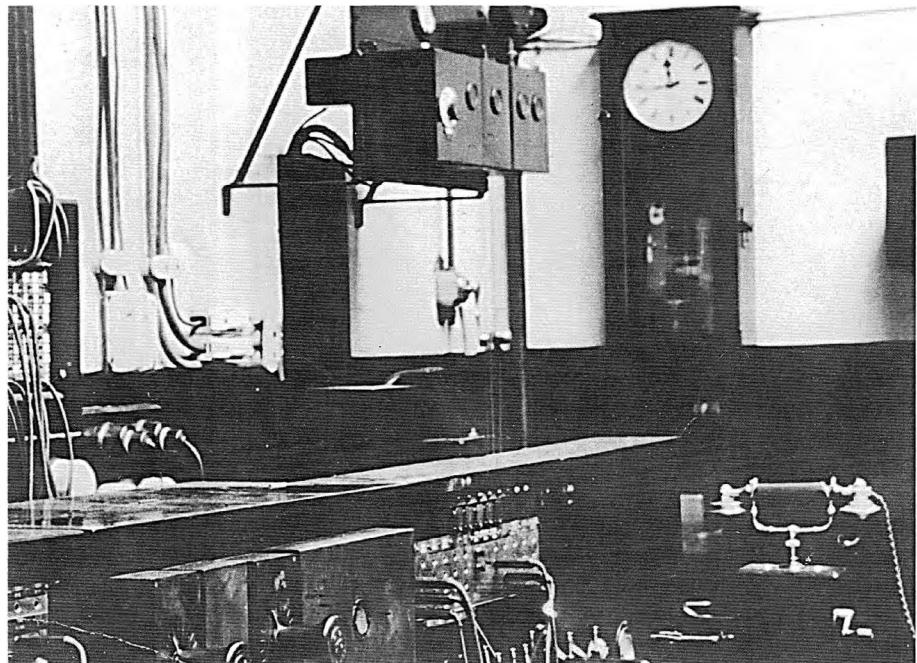
Geoffrey Goodship reports on this historic clock, an early SYNCHRONOME, that he has restored to full working order after saving it from being scrapped some thirty years ago*

OBVIOUSLY, time has always been of prime importance to the BBC (in fact, broadcasting first started with the transmission of time signals around 1905) When the BRITISH BROADCASTING COMPANY was formed in 1922 it used a 'Concert Room' at MARCONI House in the Strand. This studio had a slave dial clock operated by half-minute impulses from a MAGNETA master clock system installed by the MARCONI COMPANY in 1912. In the early 1920s mantel clocks with 'Westminster Chimes' were becoming popular, so the broadcast programmes started with the announcer playing the chimes on a set of tubular bells (now in a Surrey school) while watching the studio clock.

These early broadcasts were greatly appreciated and there was an increasing demand for longer broadcasts and a wider variety of programmes. The BBC therefore moved to larger premises leased from the INSTITUTION OF ELECTRICAL ENGINEERS at Savoy Place with the BBC entrance in Savoy Hill. The IEE had a SYNCHRONOME master clock system producing half-minute impulses, but the BBC had found that for giving time signals and general programme purposes, clocks giving seconds indication were essential. Accordingly a 19th Century clock maker's regulator weight driven wall clock, probably a Fromantcel, was bought and mounted on the studio wall. Its large centre seconds hand and visible, seconds beating, pendulum gave the announcer the best chance of making an accurate time signal. It was corrected twice daily by wireless from Eiffel Tower. Such clocks were considered to have little, if any, historical value in the early 1920s, but it caught the engineer's eye as a cheap and immediate solution to the problem. Unfortunately neither the clock nor any details have survived; I would dearly like to be informed, should any information come to hand.

On the 21st April 1923 Mr F Hope-Jones, Chairman of the British Horological Institute and proprietor of the SYNCHRONOME CLOCK COMPANY, gave a broadcast talk on Daylight Saving. At the end he told listeners to set their clocks and watches forward one hour and concluded by counting out the six seconds

*An account of this project has appeared previously in *Radio Time* (published by D J Boullin) and in the BBC staff magazine.



1. The clock installed at Savoy Hill from 1923 to 1932.

(PICTURE COURTESY OF THE BBC)

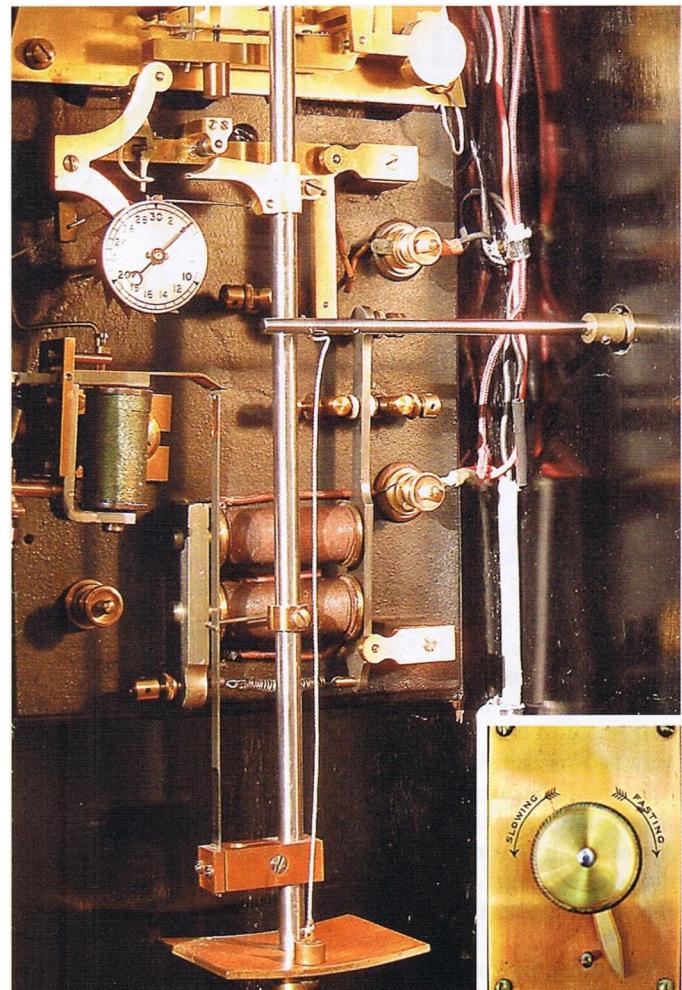
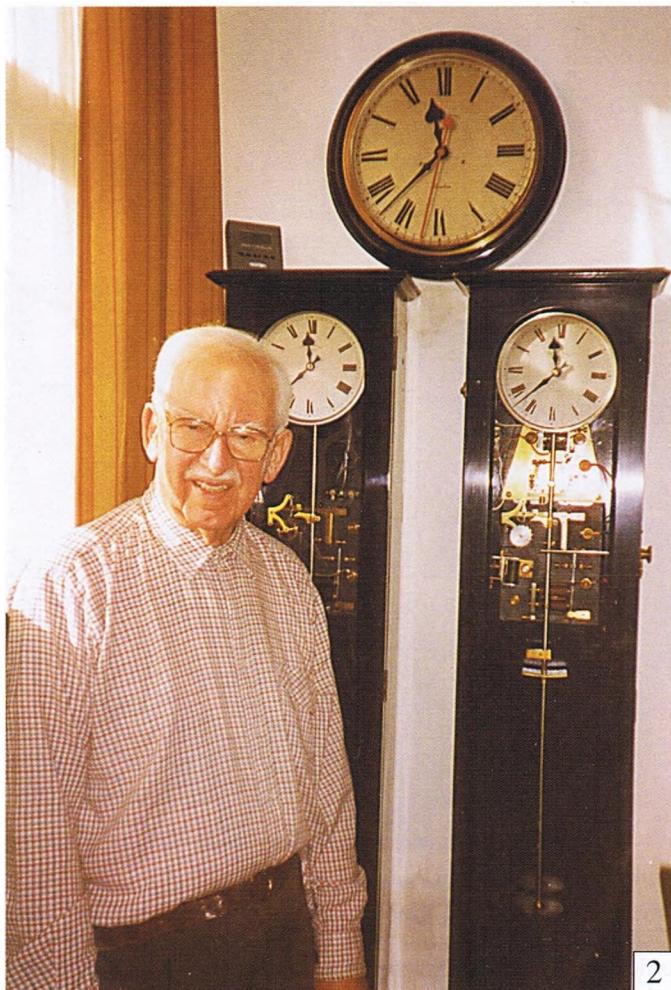
from five seconds to 10pm by reference to his watch (he was a very confident man). This resulted in the abolition of the Westminster Chimes and the announcers counted out the last five seconds before tapping a single bell at the exact hour. These time signals proved very popular and led to a decision that master clock and slave-dial installations should be made in all studio premises. The Savoy Hill installation was completed before the end of 1923. 1. The SYNCHRONOME master clock was fitted with the William Shortt seconds-pulsing switch (the large version) fitted on the A' frame above the standard SYNCHRONOME switch. It fed the seconds loop to the studio SYNCHRONOME slave clocks with large centre seconds hands.

The clock was corrected daily by the standard procedure of adding or removing small weights on the pendulum tray by reference to the Eiffel Tower signals. This may not have been entirely satisfactory because the BBC in June 1923 made a contract with the Standard Time Company "for an hourly signal to a bell or relay at a cost of 5gns per annum". This service to the BBC continued almost to the end of 1928, but was used only as a back up from the end of 1923 when the time service was obtained by line from the Royal Greenwich Observatory. Hope-Jones made many visits to the clock and this led to a better regulating device being

fitted in 1924. This consisted of a knob on the right hand side of the clock with "fasting" & "slowing" positions. It turned a shaft projecting into the clock, here the shaft was drilled to hold a silk thread carrying a small weight which was lowered onto the pendulum in the "fasting" position and raised off the tray for "slowing" without having to unlock the clock case for access. Later in 1929 the same firm fitted a William Shortt "hit & miss" Synchroniser to the clock whereby the six-pip signal from Greenwich automatically corrected the clock at regular intervals. (Unfortunately this replaced the NRA plate and the clock's serial number was thereby lost)

The clock was taken to the New Broadcasting House in 1932. It controlled broadcast time for 14 years when it was replaced by two GENT'S Pul-Syn-Etic observatory master clocks regulated from the RGO by the automatic Gents See-Saw control. The Savoy Hill clock was then relegated to the humble duty of testing slave clocks in the Clock Maintenance Room for a further 22 years.

Around 1965 the London Museum decided to mount an exhibit to show the impact that the new design features of the 1930s Broadcasting House had on London design at the time. A replica studio was considered but space restrictions forced a settlement for a 1930s typical studio



2. Geoffrey Goodship with the restored BBC Master Clock, right, and a contemporary slave clock with central seconds hand, above. Note the advance and retard knob on the right of the case, shown in the inset, above right. The detailed view of the mechanism (above) shows the seconds dial added to the count wheel and the silk thread by which the weight can be added or removed from the weight pan on the pendulum rod to advance or retard the time.

G. Goodship

control cubicle. I was charged with getting suitable equipment and properties. One item was the distinctive 1930s BBC studio clock possibly the first domestic size clock to have 'tablets' rather than numerals on the dial, and one was found among some old props under the Concert Hall stage. At this point I was shown into the Clock Room and was amazed to see the old master clock, recognising it from *Engineering Information* archive photographs as the Savoy Hill clock. I emphasised its importance as an engineering relic to those in charge and it was agreed that BBC *Engineering Information* would be informed should the clock become redundant.

In the 1970s I took over the duties of Engineering Liaison Officer, one of my duties was Curator of Engineering Relics, a collection started in Bristol by the late Peter West. The important items were sent to the Science Museum, other items were housed by Bristol Museum although there were some unofficial collections in BBC premises. When visiting by chance the electrical store in the Langham basement (the BBC leased part of the old Langham hotel for many years) I was astonished to see the Savoy Hill clock in a very distressed state piled in a corner with bits of electrical junk all destined for scrap. I had words. The clock was cleaned, broken glass restored and the clock then sent to EID for photographing, measurement recording, and allocating to Bristol.

However some time later when the clock was about to be taken to Bristol, higher authority deemed it was not broadcasting plant and therefore did not qualify to be kept as a relic and I was to dispose of it. After some discussion it was agreed that I could take the clock with a view to its restoration when I retired in 1978.

The Restoration

A detailed examination some years later showed that all the "fasting/slowing" mechanism apart from the escutcheon plate on

the side of the clock was missing, together with the seconds indicating dial and hand. The rest of the clock including the synchronising mechanism was intact albeit dirty and worn. Unfortunately I could find no archive photographs of sufficient detail to define the missing parts. So as many as possible of existing master clocks of the same make and period were examined including the reserve collection at the Royal Observatory Greenwich, where we were able to photograph a suitable seconds dial and hand for subsequent replication. But the "fasting/slowing" mechanism appeared unique to the Savoy hill clock and I had to obtain a consensus of opinion from the experts as to its detailed construction.

The surviving escutcheon plate carried a long (16mm) bush which indicated that the operating rod was not supported by any end bearing within the clock case, indeed there was no trace of any other support. The inner end of the bush bore was turned out to a larger diameter for about 5mm which was thought would have accommodated a small spiral friction spring bearing against a collar to provide positive friction for keeping the rod in its operating positions. The inner end of the rod was assumed to go just past the centre line of the clock and would have been drilled with a hole at the clock centre line for securing the thread. (There was much discussion as to the possibility of thread or fine brass chain, since the weight of the latter would form a variable regulating weight but this seemed counter to the practice of the

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