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## OBSERVATION

David Martin

### An early metronome

On top of a spinet in Fairfax House, York, sits a dark wooden box about seven inches high and four inches square. The lid at the front swings open, and inside a brass plate engraved with musical tempi and time signatures is revealed, accompanied by a brass shaft and a sliding knob. At the top of the plate are engraved the words, 'Chronometer Pridgin York. No.11'. The box is, in fact, an 18th-century metronome or 'musical time-beater'.

Pridgin's metronome, simply regarded as a device for measuring time, was not unique in that century. Experiments with pendulums had been conducted by Loulie (his *Chronometre* of 1696), D'ons-en-Bray (his *Metrometre* of 1732) and by Tans'ur (his *Plummets* of 1746)<sup>1</sup>. But these were only experiments. Pridgin's metronome was more than that.

It was, so far as I know, unique in two respects: it was the first such device in series production, and the first device to measure musical time with a ticking sound and the ringing of a bell. Furthermore, it gives hard evidence for the values of some late 18th-century tempi.

William Pridgin was a clockmaker of York who started his apprenticeship there in 1756, became a freeman of the city in 1778 and followed his trade in York thereafter until he moved to Hull in or about 1793.<sup>2</sup> Since his metronome is engraved with the words 'Pridgin York', it must have been made before 1793. Pridgin's York boasted one of the largest concentrations of polite society in the north of Georgian England, and it seems likely that, as a clockmaker to the nobility and the gentry, Pridgin was aware of their musical pursuits, and so felt justified in putting his device into series production.

The brass plate on the front of the metronome is engraved with a set of tempi, from *Allegro* to *Largo*, and a set of time signatures, arranged in four columns. A knob above these columns may be turned to any one of four positions, corresponding to the four columns. The desired value within the chosen column is set by

sliding a second knob up or down a vertical shaft in front of the plate, until it lies alongside that value.

The internal mechanism is curiously reminiscent of the clutch and gear box of a car. The power of the clockwork motor is transferred through the main escapement wheel and a clutch to any one of four secondary escapement wheels, each one matching one of the columns of time values on the front plate. The numbered knob protruding through the top of the plate serves as a gear change, allowing the user to choose which of the four secondary wheels shall be powered.

The position of the sliding knob on the shaft in front of the plate controls the speed at which the chosen secondary wheel turns. As it turns, it trips a small hammer which beats lightly but clearly against a metal bar, as well as tripping another hammer which, at regular intervals, rings a bell of such sweetness as to make those of modern metronomes seem coarse.

Is Pridgin's metronome still reliable? After 200 years can it still be relied upon to give the time values that it gave when it was new? I have so far been unable to obtain expert testimony as to the state of the mechanism. I can only give a subjective impression: the clockwork winds up with an exemplary smoothness, and then emits a steady ticking and ringing interrupted by the occasional geriatric hiccup.

As is well known, the earliest metronome markings which have survived are those given by Beethoven in 1817 for eight of his symphonies according to Maelzel's metronome.<sup>3</sup> With the discovery of Pridgin's metronome, it becomes possible to establish some general values for tempi as they were in York during the 1780s, perhaps a generation before Maelzel. Given the probable musical conservatism of Georgian York, Pridgin's time values may well reflect those of London some 25 to 30 years earlier.

Pridgin gives 14 time values in four columns. The speeds produced by the metronome for some of these time values are as follows:



1 The metronome by William Pridgen in Fairfax House, York (York Civic Trust)

Table 1

COLUMN 1		COLUMN 2	
Allegro 6/4:	$\bullet = 112$	C or 3/4 or 12/4 or 9/4:	$\bullet = 126$
Allegro 2/4 or 6/8:	$\bullet$ or $\bullet = 100$	4 crotchets Allegro or 12/8:	$\bullet = 116$
Allegro 9/8:	$\bullet = 84$	3/4 Dancing Minuet Time:	$\bullet = 100$
COLUMN 3		COLUMN 4	
C Andante:	no value given	C Largo:	no value
2/4 Andante:	$\bullet = 72$	C Largo:	$\bullet = 69$
3/4 Andante quavers:	$\bullet = 126$	3/2 Largo:	$\bullet = 63$
C 8 quavers, Andante:	$\bullet = 116$	3 Adagio:	$\bullet = 52$

A modern metronome, a Wittner, has the following time values inscribed on it: Allegro = 120–168. Andante = 76–108. Adagio = 66–76. Largo = 40–60. Pridgin's Allegro and Andante appear to be slower tempi than their modern counterparts. His Adagio had about the value now ascribed to Largo, whilst his Largo was faster than the modern Largo; so Adagio, and not Largo, was the slowest of his tempi. Pridgin's patrons must have danced their minuets to quite a stately measure.

Ingenious though it was, Pridgin's metronome was presumably too costly and delicate to find general favour, and so it left no clear imprint on musical history. But the principles behind the machine may not have been lost. In 1798 one Anthony Eckhardt, FRS, patented a metronome distinctly reminiscent of that of Pridgin.<sup>4</sup> A similar metronome, possibly inspired by Eckhardt's, was invented by Henry Smart about 1816.<sup>5</sup> Soon after this, Maelzel's metronome appeared on the market and, with the benefits of its simplicity, ruggedness and compact size, carried the market before it. It has never lost its pre-eminence. But though Pridgin's machine probably did not enjoy real commercial success, it was a remarkable enterprise in its day, and represents a new chapter in the history of the measurement of musical time values.

*I would like to thank Peter Brown, Director of Fairfax House, York, for his help. Pridgin's metronome is part of the Fairfax House collection of Georgian furniture and domestic articles.*

*David Martin holds the Mus. B. of the University of Canterbury, New Zealand, and now works for the British Library.*

<sup>1</sup>Harding, *The Metronome and its Precursors* (Henley-on-Thames, 1983), pp.9–10, 12–17, 17–18

<sup>2</sup>Loomes, *Yorkshire Clockmakers* (Littleborough, 1985), p.141

<sup>3</sup>Harding, *op cit*, pp.27–28

<sup>4</sup>Harding, *op cit*, pp.19–21

<sup>5</sup>Harding, *op cit*, pp.21–22

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