The Learning Curve

A regular feature sponsored by the Central Council Education Committee
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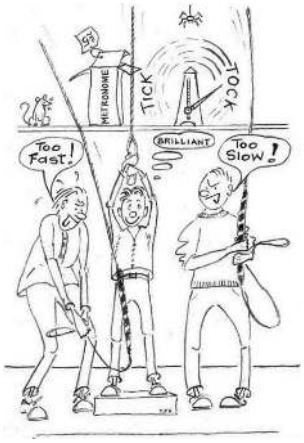
How fast should we go?

Ringing speed is a bit like room temperature – you don't normally think about it – and you only notice it when it makes you uncomfortable. Also like room temperature, people can have different ideas about what is best, and why.

What matters is the quality of the performance. If that is good, then speed is secondary. In practice though, the range of speeds at which you can achieve good striking on a given ring of bells is limited.



The effects of different speeds

Let's begin with a recap from *The Learning Curve* of June 2001 (Vol 1 Chapter 24). Ringing faster means the bells do not swing so high. When a bell is ringing part way down like this it is much harder to vary the speed quickly and accurately in order to ring changes.

Ringing more slowly means that the bells must swing higher, but once a bell is swinging up to the balance, the only way to slow it further is to hold it for increasingly long periods over the balance. In theory you can extend this indefinitely, but in practice the longer the bell is held stationary, the harder it is to maintain a rhythm and strike accurately.

These two factors limit the speed at which it is practical to ring changes. The faster limit is set by the physical effort needed to move the bells between places, and the slower limit is set by the extreme difficulty of maintaining the rhythm needed to ring accurately. Neither limit is a fixed number, but they are still real. A very skilful band can push the limits at both ends, and with increased effort still ring to an acceptable standard, but less experienced bands cannot, and should aim to ring somewhere near the optimum speed for the bells.

Optimum conditions occur when a bell rings near the balance. The optimum speed is different for heavier and lighter bells, and the faster the ringing, the more bells will ring below the balance. Normally there has to be a compromise – the Trebles ring over the balance in order for the Tenors to be not too far below it.

Knowing whether you get it right

If the result is good, then the speed is OK, so if there is a good rhythm, you are all striking well, and no one is working too hard, then you must be in the good range of speed for your bells. Enjoy it.

If things aren't going so well, there could be many causes, of which speed might or might not be one. How can you tell?

If the back enders are sweating and/or unable to get the over and under blows of dodges a whole place apart, then you might be going too quickly. Of course, if only one of them has these problems, then it is possible that (s)he is prone to over pulling anyway, or isn't adjusting the rope length properly.

Ringing too slowly is more common with inexperienced bands, and it can produce many effects. If the back bells are going a long way over the balance, then you are probably ringing too slowly. Visual symptoms include the Tenor ringer getting 'caught unawares' and having to apply extreme force to stop the bell, striking late as a result.

Even before reaching this extreme, the main effect of ringing too slowly is to destroy the rhythm. If everyone is well over the balance, then it's harder for you all to exploit the natural rhythm of the bells. Instead of feeling what the bell is doing and ringing it a fraction higher or lower to adjust, your timing boils down to how long you can hold the bell over the balance, which is much less accurate and predictable. By itself, this uncertainty in timing your own bells will degrade the striking, but it also increases another risk, caused by the interaction between different bells.

With a lot of 'waiting', and less natural rhythm, the temptation to 'wait to see the bell being followed' gets much greater. That is likely to slow the ringing down even more. (At normal ringing speeds, by the time you have seen the bell in front pull off, and then set about pulling off your own bell, it is generally too late, and you should already have gone.) It also makes you more hesitant, as you find yourself making timing decisions at the last split second – a sure recipe for not ringing rhythmically.

This sort of ringing has several characteristic features. It is hesitant and a bit lumpy. It is often 'fragile' too – more prone to fall apart if someone makes a slip, because everyone is 'waiting' for everyone else. Contrast that with fluent ringing, when the rhythm and momentum of the bells would keep those who hadn't gone wrong moving at the correct speed, and provide a framework for whoever tripped up to fit into once the trip had been detected.

What causes speed problems?

Let's dispose of the main physical factor – rope length. If the ropes are too short, it is harder to hold up, and there is a natural bias to ring more quickly than you would otherwise. If the ropes are long, it is tempting to ring with too much rope rather than endure a flapping tail end, and without any conscious effort the bells go higher, and therefore ring more slowly than they would with the rope lengths all correct.

Many non physical factors can affect ringing speed – mostly to slow it down. A long draught, a large rope circle, or ponderous acoustics seem to encourage slower ringing. The most common reason for ringing too slowly though, is the desire to see who you are following before committing to the next stroke. On a light six you can just about get away with this (though not on the back bells) but more weight and/or more bells, make it impossible. For example, ringing 8 bells at 30 changes per minute, the gap between successive bells is a quarter of a second. Human reaction time to a visual stimulus is typically somewhat more than this. Include some uncertainty about the method and the numbers don't add up.

It is tempting to think that ringing more slowly gives more thinking time, but the absolute difference in time is not very large – even very slow ringing is unlikely to be more than 10-20% slower. The real problem is last minute thinking, instead of thinking ahead.

Solving the problems

First check the easy things. Are the ropes a sensible length? Get them adjusted not too long for your tall ringers, and if you haven't already got any, then invest in a set of various sized boxes to cater for your shorter ringers.

Now for the difficult things. If you can all try to ring rhythmically, then you will find it much easier to 'feel' the natural speed range of your bells. But how do you help people to ring rhythmically if they have got into the habit of waiting for someone to follow? That is a big topic, that could fill much more than this page.

One obvious starting point would be to give everyone the chance to ring with a simulator – not just a quick taster (though that can do wonders for confidence) but several extended sessions – long enough to enable them to become conformable trusting their own sense of rhythm and feeling the bell's natural rhythm.

Once comfortable ringing rounds by rhythm (at different speeds) the next step is to do the same for change ringing. Keep it simple – plain hunt is perfectly adequate since it includes changes of direction, which are the key rhythmic ingredients of all method ringing.

Then look at method learning – uncertainty about what to do next will undermine the rhythm. Obviously we all make some mistakes, and you expect to be less secure when pushing on to new methods, but while ringing 'within your ability' you all need to be confident of what you are doing, even when there are errors around you. There are many approaches and tips for learning methods, which work for different people, but make sure that whichever combination your ringers use, they 'work' for them, ie they deliver enough knowledge about what comes next to free up the mind to focus on putting the bell in the right place,

Then try to develop the ability to ring rhythmically together, avoiding the temptation to break the rhythm with hesitations, and using it to keep you all going at the same speed.

What if we disagree about the speed?

You might be surprised, but if you can develop the ability to ring rhythmically together, then speed problems will probably solve themselves, as you all feel the natural range of speeds at which your bells go best.

Tail End

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