The Learning Curve

A regular feature sponsored by the Central Council Education Committee
www.cccbr.org.uk/education/

Up and down

"All you do when ringing is move your arms up and down with the rope.". How often have you heard something along those lines jokingly said? At one level it is true – a casual observer watching the relaxed, easy style of a competent ringer, could be forgiven for thinking that ringing can't really be very difficult. Of course we know better – many ringers have great difficulty learning to move harmoniously with the rope. Some ringers quickly get the feel of how the rope behaves, and learn to adapt to it, but others don't, and struggle awkwardly. For them, learning to handle a bell is a slow, uncomfortable and unsatisfying process, and mastering full bell control may permanently elude them.

Someone once said "It's not what you do, it's the way that you do it.". That is very true of ringing. The elegant ease with which a competent ringer moves a bell to strike in exactly the right places, and the frantic heaving and tugging of the tyro who never quite puts the bell where it should be, can both be described as 'moving arms up and down while pulling on the rope'. The crucial difference is 'how' it is done, but it is much harder to describe how, and even harder to see it.

This month, we will try to peel away some of that obscurity, to understand more about 'how' to move our arms up and down successfully.

Two strokes or four?

No, we are not about to discuss the pros and cons of motor cycle engines. We are accustomed to thinking of ringing in terms of just two strokes, but it is vitally important to recognise at an early stage that each stroke has two quite distinct component parts: when the rope is rising and when the rope is descending. So although the hands only go up and down twice, there are four separate actions (like a four-stroke engine, where the piston only goes up and down twice during each complete cycle). Figure 1 shows the four strokes. It is taken from *The Tower Handbook* and also appeared in *The Learning Curve* in November 2001 (Volume 1, Chapter 29).

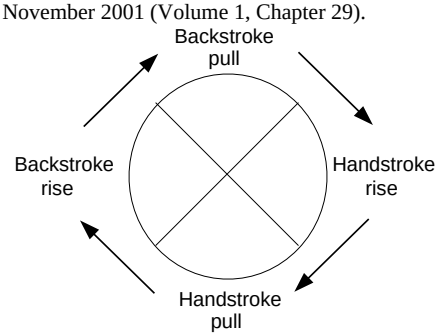

Figure 1: The four-stroke cycle

There are two ways to look at Figure 1. Split it top left v bottom right, and you have the familiar backstroke and handstroke. But look at opposite sectors, and you see two pairs of action with similar function. The top and bottom sectors represent the downward 'pull' strokes, while the left and right sectors represent the rising strokes. In almost all respects apart from the bit of the rope that you are holding, and which end of the pit the bell is swinging, these opposite strokes behave the same.

Pulling v checking

This is one of the most fundamental distinctions in ringing, but it is not universally understood.

• Effort applied to a rising rope is 'checking'. It prevents the bell from rising as far as it would otherwise have done. It removes energy from the bell, which as a result won't swing as high on the next stroke either, if left to itself.

• Effort applied to a descending rope is 'pulling'. It makes the bell swing down more rapidly, giving it extra energy that makes it swing higher on the next stroke, if allowed to.

Pulling and checking have opposite effects on the bell – pulling makes it swing higher (and therefore more slowly) while checking makes it swing less high (and therefore more quickly). With most control systems (the handle bars of a bike, the steering wheel of a car, or the brake and accelerator pedals of a car) you can apply control in either direction at any time, but with a bell you can't. You can only check when the rope is rising, and only pull when it is descending. So instead of deciding which way to move the control (eg steering wheel) or which control to use (eg brake/accelerator pedals) you have to decide **when** to apply force to the rope. Timing is the only difference.

If you apply force at the wrong time, it will have the opposite effect to what you intended. Just imagine driving a car with a single pedal that applies the brakes if you are going round a left hand bend, and the accelerator if you are going round a right hand bend!

The opportunities to pull or check come in quick succession, as illustrated in Figure 2, which shows successive handstrokes and backstrokes against time. The white areas are opportunities to check (on the rising strokes) and the black areas are opportunities to pull (on descending strokes). The gaps between show where the rope is slack at the lower part of the strokes, and so can't be used to control the bell.

Figure 2: Opportunities to check and pull

Let's think about the practical effect of different ways to vary the force on the rope as the strokes progress. Figure 3(a) shows some force mainly applied on the upward stroke (ie checking). There is a little force on the down stroke, to stop the rope going slack, but it is much smaller, and the net effect is to check the bell and make it ring more quickly. Figure 3(b) shows the reverse of this, with the main effort on the down stroke (ie pulling) and minimal force on the up stroke, again just enough to stop the rope going slack.

Notice that in both cases, the level of force changes very neatly at the top of the stroke, between the checking and pulling times. What if you can't achieve such precise control, and you just apply a moderate force during most of the time the rope isn't slack, as shown in Figure 3(c)? The total effort is about twice what it was in the first two cases, but in terms of the effect on the bell, the checking part more or less cancels out the pulling part.

Figure 3(d) shows much more force being applied, but here too the effort on the rising stroke and the effort on the downward stroke more or less cancel each other out. This is generally referred to as 'over-pulling', though it is actually a combination of over-pulling and over-checking. The key point is that simply applying more force is not very effective if you don't selectively apply it to either the rising or downward strokes, whereas you can achieve a lot of control with quite modest force if you are selective. It's all about timing.

Figure 3: Applying effort at different times

Going with the flow

One thing that makes it harder for new ringers to apply force selectively through the quite short up-down action (perhaps a second) is that the rope is a moving target. You can't begin to be subtle about when you apply force unless you can first accurately track the rope's movement. Move your hands too slowly, and the rope will tug at them (applying a lot of force). Move them too quickly and the rope will go slack (letting the force drop to zero). It wouldn't be so bad if the rope moved at a constant speed, but it doesn't; it moves very quickly low down, and quite slowly near the top of the strokes.

In addition to this, the way the rope moves on different bells is different, sometimes subtly and sometimes quite dramatically. The way the bell is hung affects the dynamics, the size of the wheel determines the total extent of the rope movement, and the position of the garter hole can make handstroke and backstroke feel different. So as well as becoming familiar with the general way that a rope accelerates and decelerates as it rises and falls, you must also learn to adapt to the particular movement of the bell you are ringing at the time.

The best way to learn to adapt is to ring lots of different bells, especially bells with different wheel sizes (which generally means ringing both heavy and light bells). It's best to get this experience as early as possible in your ringing career, while your skills are still developing, and before habit sets in, but it is never too late to broaden your experience.

In his book *One Way to Teach Bell Handling*, Richard Pargeter says: "one of the most important things you are trying to teach him at this stage is the feel of the bell". That 'feel' includes the way the rope rises and falls, as well as what the bell feels like near the balance.

Richard goes on to say: "remember you are trying to cultivate that cool, calm and unflappable air". The ability to adapt to the rope's natural movement, and to follow it naturally and exactly, with no drag, and not trying to push it, is a precursor to that calmness. When you can 'go with the flow' of the rope, you can relax, confident that the only force applied will be what you intend, exactly when you intend it.

Tail End

The Learning Curve, Volume 1: 1999-2001, *One Way to Teach Bell Handling*, and *The Tower Handbook*, are all available from CC Publications.

Reprinted from *The Ringing World* 4th May 2007. To subscribe, see www.ringingworld.co.uk/ or call 01264 366620
Collections of monthly *Learning Curve* articles from 1999 are available from CC Publications www.cccbr.org.uk/pubs/ See advertisements in *The Ringing World.*