The Learning Curve

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Learning the ropes

Walk into a ringing chamber and you don't see bells, you see ropes. We take the ropes for granted, but they play a vital role. The rope is the only connection between you and the bell - your only means of control. You want to ring the bell, but to do so you have to ring the rope. Some ringers have problems with ropes and many ringers have problems with some ropes. This month we think about ropes, how they work, and how to get the best out of them when ringing.

Don't push

Let's start with the basics. Ropes can be pulled but not pushed. That might seem a silly thing to say, but some ringers do push their ropes, without realising it. If your arms rise more rapidly than the rope, then it goes slack - you are pushing it. It won't affect what the bell does, but it has a big effect on what the rope does. Ropes are floppy things and they move quite fast. That is not a good combination. If you want your rope to behave, then keep it taut for as much of the time as possible.

The speed of the rope varies from slow to very fast during each cycle, so to keep a small controlled amount of tension on the rope, your arms must rise at exactly the same speed as the rope. Any faster and the rope goes slack, any slower and you have let go! You can't even take the easy option of just letting the full weight of your arms hang on the rope all the time. It would be extremely painful as it jerked your hands from rest every stroke and would completely mess up your attempts to control the bell. So you must learn how to move your arms at exactly the same (varying) speed as the rope.

If you get it wrong, and the rope slackens, the spare rope flops to the side. A slack rope behaves a bit like a whip - the small sideways movement is magnified as it travels along the rope. With a whip the energy dissipates at the end with a loud crack but with a bell rope it is reflected back down from the rope guide to the sally. It might take a second to do so, but then it disrupts your handling even further.

Dancing sallies

A well behaved sally bobs - the word conjures up images of elegant ladies doing a little curtsey. Sallies are not always so well behaved - sometimes they dance wildly like dervishes. It is not hard to see why ringers who haven't mastered the art of managing the rope are frightened of it. They might not say so, but it is obvious from their expression and behaviour. Some people say that if you meet a wild animal it can sense whether you are afraid, and if you are it will attack you. A bell rope is not a wild animal, but seeing the same sally respond so differently to different ringers, you might be tempted to believe this old saying.

We noted that the rope magnifies the effect of a slack rope. If you mishandle it, it reacts even more violently, often mirroring what you do to it. Snatch it and it will jerk and twist. Push it away from you and it will swing back at you. Pull it towards you if you stand back, and it will swing away making you chase after it.

Faced with such erratic movements it is tempting to try to 'round up' the sally by sweeping your arms in an arc to catch it. You might catch it, but in doing so you will lash the tail end around too. As soon as you release the sally, the energy stored in the swinging tail portion passes through the sally to launch another wave of disturbance up the rope. That in turn will hit you the following stroke.

The key to a well behaved rope is vertical hand movement. If you make no deviations from the straight line, you give the rope no disturbances to amplify. Having said this, some ropes are less forgiving than others. If the rope is 'drawn', ie the rope guides take it out of the vertical, then it will have some sideways movement of its own as it comes down. The best way to counter this is to maintain a little tension on the rope for as long as possible, to reduce the time the rope can move sideways.

Springy ropes

An ideal rope will give you a perfect feel for what the bell is doing and allow you to apply finely adjusted forces to control it. The movement of one end is exactly coupled to the movement of the other. A stretchy rope messes up both the feeling and the fine control, because the two ends are not perfectly coupled. What you feel on your end is not the same as what the bell is doing on the other.

A springy rope stretches whenever you, or the bell, apply force to it. As the rope stretches (and unstretches) the relationship between the movement of your hands and the bell changes unpredictably so you can less accurately control the force applied to the bell. Also when you pull, the small delay as the rope stretches makes the effect on the bell a little later than you expect, so you can't control the timing so accurately either. To cap it all, the 'soggy' rope makes it harder to judge how much force you need anyway.

You might not have realised it, but when you ring, you, the bell and the rope form a feedback loop, as shown in figure 1.

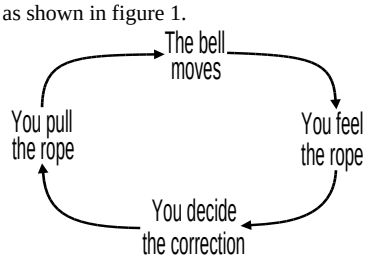

Figure 1

It is well known (to control engineers anyway) that adding delay into a feedback system can make it go unstable and oscillate. With a very springy rope this can indeed happen. As your arms interact with the rope, tension waves travel back and forth along it and make the bell feel as if it is moving in jerks rather than smoothly. Oscillations are more easily triggered by jerks than by a steady pull, so rough handling causes more problems.

In former years, all towers of any significant draught had to endure springy ropes from time to time, as new ones bedded in. That problem can now be reduced by using pre-stretched polyester top ends for the ropes, but you still meet it from time to time. Some inferior grades of polyester rope stretch a bit - not as bad as new natural fibre ropes, but unlike natural fibre ropes, they never bed in and harden.

Twisting ropes

When you lift your hands to grip the sally, the rope between the sally and the tail end in your hand should hang neatly without any twists or kinks. If it doesn't then there is a reason. If the hanging rope twists around itself, it is because the rope is slightly twisted. You sometimes see inexperienced ringers take hold, and on noticing the twist, stand back slightly to look to see what is causing it. In doing so, they move the hand holding the tail end away from the sally and the twist disappears. Thinking the problem has solved itself, they take hold again and are puzzled when the twist returns. The reason is simple. The narrower the loop, the less force it needs to make it twist.

The simplest way to remove the twist is to rotate the tail end half a turn or more in your hand. Ideally do this before you start ringing, but you can also do it if you notice a twist while ringing. Do it between backstroke and handstroke, the same as you would take in or let out a little rope to adjust the length to match the speed. Some people find it obvious which way they need to turn the tail end to make the twist go away, but others find it hard to visualise. You can teach yourself when not ringing. hold the rope as if you were about to ring it and then turn the tail end until the loop twists. Then turn it to untwist the loop until you see how it works.

There are other ways to straighten the rope at the start. You can drop it on the floor and pick it up again. This might work, but if you picked it up wrongly the first time, you might just do the same thing again. I have seen it done three times in a row, producing the same twist every time! Or you can drop the rope, take hold of the sally with both hands, slide one hand, then the other, to the rope end, and take hold again.

Commonly, the twist is only half a turn or so, caused by the way you pick up and get hold of the rope. In more severe cases, people have found that the rope becomes progressively more twisted as the ringing progresses. It might not be noticed during an ordinary touch, but becomes really bad when ringing a quarter peal. In this case, there is something wrong in the handling that progressively rotates the rope.

It is quite normal, and indeed desirable, to make continual adjustments to the position of your hands on the tail end. If you move up and down the tail end in a relaxed way, you should not introduce any twists. If you are tense, or use exaggerated hand movements, then you could twist the rope slightly each time you make an adjustment. Generally, the more gentle and relaxed you can make your rope handling, the less likely you will be to have problems.

If your rope does not behave properly, get someone else to take a critical look at you while you ring, noting what your hands do to the rope. People have been known to do many strange things including little flips or twists, and even moving both hands around on the tailend before pulling down from backstroke. They are often unaware of what their hands are doing until shown the evidence on a camcorder. If you have never used one, why not organise a session so you can all look at your rope handling in detail. It could be revealing.

Tail End

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