The Learning Curve

Mother of invention

'Necessity is the mother of invention'. One area in ringing with scope for invention is the creation of touches. Most of us ring touches out of *The Ringing World Diary* or other books, but if there is nothing suitable to hand, why not invent one? It is easier than you think.

Don't be put off thinking 'I am not clever enough to be a composer'. You don't have to be a master builder to put up a shelf. There is a whole spectrum of composition from the trivial to the exotic, so we will look at things simple enough for a non expert to tackle. Most serious compositions are quarter peals or peals, but most often we ring fairly short touches, so we will look at them.

How long do you need?

Different length touches are good for different things. Very short touches don't give much time for the band to settle down, but can be useful if you only have a few minutes available before a service. Longer touches give more time to settle down, but you can fit fewer of them into the time available. For general practice and service ringing, most people prefer touches shorter than about 10 minutes, which on average bells, means 200 - 250 changes with a couple of minutes rounds to settle in. It can be tempting to opt for shorter touches (the ubiquitous 120 of Doubles) on the ground that people get more rings, but in practice, they get less total ringing time, since with more breaks between touches, more time is lost.

If your numbers are limited and there is no one sitting out, then there is a lot to be said for ringing longer touches, say 20 minutes (around 600 changes) or more. If you decide to ring a long touch, it is useful to know how to shorten it if someone else arrives part way through. For a service touch, you might prefer a longer stretch of ringing especially if there are only just enough of you.

These figures give a rough guide only, but it's worth checking how long things take on your bells. Also, if you have one of those bands where people take an age to catch hold and sort themselves out before each touch, you need to allow another minute or so between deciding what to ring and actually starting.

Multi part touches

One simple way to make a touch is with a number of identical blocks. For example, you can put a bob at the end of a plain course and then repeat everything until it comes round. With Plain Bob (and other methods with a 2nds place lead and a 4ths place bob) this produces a three course touch. That is fine for Plain Bob Doubles (3x40 = 120) or Minor (3x60 = 180), or Little Bob Major (3x56 = 168) but rather long if you are ringing Surprise Major (3x224 = 672). For Grandsire, the number of courses is two less than the number of working bells, so for Doubles it is three courses (3x30 = 90) and for Triples five courses (5x70 = 350). For methods like Kent, with a last place lead (6ths for Minor, 8ths for Major, etc) and a 4ths place bob, the number of courses is three less than the number of working bells, so Kent Minor needs three courses (3x120 = 360) but Major needs five (5x224 = 1120) - almost a quarter peal.

Blocks don't have to be whole courses. A useful block for Grandsire Triples (or above) is one lead shorter than a plain course (ie four leads, with the last one bobbed). It produces a three block touch (3x4x14 = 168). Bells 567 come home at the end of every block, which is more musical than touches that mix them up. This 'short course' works because in Grandsire, a bob makes bells at the back skip a lead.

At the extreme, a block could be a single bobbed lead. Repeating that gives a touch in most methods, but the number of blocks in the touch varies with the method. Many are shorter than a plain course (eg Plain Bob is 2 leads shorter) some are the same length as a plain course (eg Cambridge) and some are longer (eg Norwich Minor is 1 lead longer).

Bob courses of methods like Kent and Bristol, with last place lead ends and 4ths place bobs, are three leads long on any number of bells. This works because the bob makes the back bells repeat a lead. They are very convenient to fill in a short time slot.

A two lead block, one plain and one bobbed, works for many methods and calling a bob every other lead is easy. For Plain Bob at even stages* this has as many blocks as working bells, ie the touch is twice the length of a plain course. It also has every bell at a different position for every bob (all the work). For odd stages the lengths vary, eg three blocks for Doubles (60), four blocks for Triples (112). Interestingly, the same is true for Grandsire Doubles and Triples.

Variations on a theme

So far, we have assumed that the bob is at the end of a block, but it need not be. You can ring the same cyclic pattern of plain leads and bobs starting anywhere. For example, a three course extent of Bob Doubles with the bob at the end of each course has the 5th as observation, but by moving all the bobs one or more leads earlier, you can make any of the other bells observation.

Working them out

You can work out more touches for yourself, using pencil and paper.

Nobody writes out every row of a touch, which would be very laborious. There is a simpler way, based on the fact that touches are built of whole leads. The touch starts with Rounds, which is a lead head (the second row of a Treble lead). If you know a rule (called a transformation) for how to work out the next lead head from Rounds, you can apply it repeatedly to get the next and the next, and so on. With other transformations for bobbed and singled leads, you can work out a whole touch.

As an example, let us consider St Clements Bob Minor. Write down Rounds and the next lead head (which you can copy from *Diagrams* or *The Ringing World Diary*). It is 142635. Now compare this with Rounds to see the transformation. Figure 1 shows the transformation, using arrows.
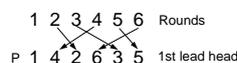
Figure 1: Transformation for plain lead

Some people just use the sequence of numbers to represent the transformation. Thus 142... means 'Take the first number of the previous row, then the 4th number, then the second number, and so on' to make the new row. Most people find the arrows easier to understand at first though.

Repeating the transformation has the same effect as repeatedly ringing the block. Follow the arrows to see this. Start with the 2 which points to 3rds place. Then follow the 3 to 5ths place, and so on. It takes five moves to get back to the start, so you must ring the block five times to get back to rounds. Of course you already knew that five plain leads made a course, but it is always a good idea to check things in case you have made a mistake.

You can work out the transformation for a bobbed lead by starting with the plain lead row (142635) working back one change to 'undo' the effect of the plain lead end (which gives 142635) and then working forward one change to apply the effect of the bob (which gives 146253). Figure 2 shows this process.
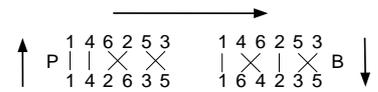

Figure 2: From plain lead to bob

Figure 3 uses this row to show the resultant transformation for a lead with a bob. Trace the arrows and you will see that again it takes five steps to go round the cycle, so you need five bobbed leads to get to Rounds - a 'bob course'.
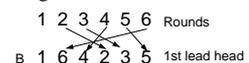

Figure 3: Transformation for lead with bob

How many blocks

Let's stick with St Clements, and try a multi part touch based on a two lead block - one plain and one bobbed. Figure 4 shows the figures. The first two rows are the same as in Figure 1 and the third row is obtained by applying the transformation in Figure 3 to the second row.
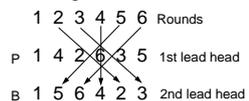

Figure 4: Combined transformation for block

The arrows in Figure 4 show the combined effect of the two leads. Follow the arrows and you see that they no longer form a 5-way cycle. 2 and 5 swap, as do 3 and 6, with 4 left in the same place, so after ringing the block twice, it will come back to rounds. With a two lead block, that gives a four lead touch (2x12x2 = 48 changes).

Other approaches

Repeating simple blocks is only one way to create simple touches. You can also shorten or lengthen an existing touch or join two touches together. Then of course there are questions of truth and beauty (or more prosaically falseness and music) and touches to exercise learners in particular ways. *The Learning Curve* will look at these in a future article.

Tail End

* The stage is the number of working bells, ie Minor, Major, etc.

** A 'lead' of a method is the block of rows starting with the backstroke row of the Treble's lead and ending with the handstroke row of the Treble's following lead. It starts with the 'lead head' and finishes with the 'lead end'.