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*** START OF THE PROJECT GUTENBERG EBOOK TINTINNALUGIA, OR, THE ART OF RINGING ***

[Transcriber's note: A table of contents has been added to this eBook for the convenience of the reader. A number of typographical errors have been corrected and these corrections highlighted in the text.]

TINTINNALUGIA: **OR,** **THE ART** **OF** **RINGING.**

Wherein
Is laid down plain and easie Rules for Ringing all sorts of *Plain Changes*.

Together with
Directions for Pricking and Ringing all *Cross Peals*; with a full Discovery of the Mystery and Grounds of each Peal.

As Also
Instructions for *Hanging of Bells*, with all things belonging thereunto.

by a Lover of that ART.

A. Persii Sat. V.
Disce: sed ira cadat naso, rugosaque sanna,

LONDON,
Printed for *F.S.* and are to be Sold by *Tho. Archer*, at his Shop under the *Dyal* of *St. Dunstan's Church* in *Fleet-street*,
1671.

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TO THE *NOBLE SOCIETY* OF COLLEDGE-YOUTHS.

Gentlemen,

I have seen a Treatise intituled, *de Tintinnabulis*—that is, of little Bells, the Language Latin, but pen'd by a *Dutchman*, being a Discourse of striking tunes on little Bells with traps under the feet, with several Books on several Instruments of Music, and Tunes prick't for the same; Then considering that the Well-wishers to either of them, took great pains to make plain the use of them, I thought it worth a Dayes labour, to write something on this Art or Science, that the Rules thereof might not be lost and obscured to some, as the *Chronicles* before *William* the Conqueror, being given only by Tradition from Father to Son. Wherefore I humbly intreat you favourably to accept this small Treatise, as a foundation whereon may be raised a famous Structure; and if any one objects a fault, excuse it with the Ringing term—*He was Over-bell'd*—So you will much oblige him that is a Well-wisher to your Recreation,

Campanista.

On the Ingenious Art of RINGING.

What Musick is there that compar'd may be
To well-tun'd Bells enchanting melody!
Breaking with their sweet sound the willing Air,
And in the listning ear the Soul ensnare;
The ravisht Air such pleasure loth to lose,
With thousand Echoes still prolongs each close;
And gliding streams which in the Vallies trills,
Assists its speed unto the neighbouring Hills;
Where in the rocks & caves, with hollow gounds,
The warbling lightsome Element rebounds.
This for the Musick: In the Action's Health,
And every Bell is a *Wit's* Common-wealth
For here by them we plainly may discern,
How that Civility we are to learn.
The Treble to the Tenor doth give place,
And goes before him for the better grace:
But when they chance to change, 'tis as a dance,
They foot *A Galliard, à la mode de France.*
An Eightenscore's a figure dance, but *Grandsire*
Hath the Jig-steps! & Tendrings Peal doth answer
The manner of *Corants*: A plain Six-score,
Is like a *Saraband*, the motion slower.
When Bells Ring round, and in their Order be,
They do denote how Neighbours should agree;
But if they Clam, the harsh sound spoils the sport,
And 'tis like Women keeping *Dover* Court
For when all talk, there's none can lend an ear
The others story, and her own to hear;
But pull and hall, straining for to sputter
What they can hardly afford time to utter.

Like as a valiant Captain in the Field,
By his Conduct, doth make the Foe to yield;
Ev'n so, the leading Bell keeping true time,
The rest do follow, none commits a Crime:
But if one Souldier runs, perhaps a Troop
Seeing him gone, their hearts begin to droop;
Ev'n so the fault of one Bell spoils a Ring,
(And now my *Pegasus* has taken Wing.)

**Upon the Presentation of
GRANDSIRE BOB
To the
COLLEDGE-YOUTHS,
By the
AUTHOR
Of that PEAL.**

Gentlemen of the Noble Crew
Of *Colledge-Youths*, there lately blew
A wind, which to my Noddle flew
(upon a day when as it Snew;)
Which to my Brains the Vapors drew
And there began to work and brew,
'Till in my *Pericranium* grew
Conundrums, how some Peal that's New
Might be compos'd? and to pursue
These thoughts (which did so whet and hew
My flat Invention) and to shew
What might be done, I strait withdrew
Myself to ponder—whence did accrue
This *Grandsire Bob*, which unto you
I Dedicate, as being due
Most properly; for there's but few
Besides, so ready at their Q——
(Especially at the first View)
To apprehend a thing that's New;
Though they'l pretend, and make a shew,
As if the intricat'st they knew;
What *Bob* doth mean, and *Grandsire True*,
And read the course without a Clue
Of this new Peal: Yet though they screw
Their shallow Brains, they'l ne're unglue
The Method on't (and I'm a Jew)
If I don't think this to be true,
They see no more on't than blind *Hugh*.
Well, let their tongues run *Titere tu*,
Drink muddy Ale, or else *French Lieve*,
Whil'st we our Sport and Art renew,
And drink good Sack till Sky looks blew,
So *Grandsire* bids you All adieu.

R.R.

THE ART OF RINGING.

Of the Beginning of *Changes*.

It is an ancient *Proverb* with us in *England* (That *Rome* was not built in a day) by which expression is declared, That difficult things are not immediately done, or in a short time accomplished: But for the *Art of Ringing*, it is admirable to conceive in how short a time it hath increased, that the very depth of its intricacy is found out; for within these Fifty or Sixty years last past, *Changes* were not known, or thought possible to be *Rang*: Then were invented the *Sixes*, being the very ground of a *Six score*: Then the *Twenty*, and *Twenty-four*, with several other *Changes*. But *Cambridge Forty-eight*, for many years, was the greatest *Peal* that was *Rang* or invented; but now, neither *Forty-eight*, nor a *Hundred*, nor *Seven-hundred and twenty*, nor any Number can confine us; for we can *Ring Changes, Ad infinitum*. Although *Philosophers* say, *No Number is infinite, because it can be numbred*; for *infinite* is a quantity that cannot be taken or assigned, but there is (*infinite quoad hos*) as they term it, that is *infinite* in respect of our apprehension: Therefore a *Ringers* knowledge may seem *infinite* to dive so *infinitely* into such an *infinite* Subject; but least my Discourse should be

infinite, I will conclude it, and proceed to the *Peals* following.

Before I Treat of the method and diversity of *Peals*, I think it not impertinent to speak something of the *Properties* wherewith a *Young Ringer* ought to be qualified, and then proceed to the *Peals*. First then, before he is entred into a *Company*, it is presupposed, that he is able to *Set a Bell Fore-stroke and Back-stroke*, as the terms are: Next, that he know how to *Ring Round*, or *Under-sally*: Then, that he may be complete, it is convenient, that he understand the *Tuning of Bells*; for what is a *Musician*, unless he can *Tune his Instrument*, although he plays never so well? To do which, let him learn on some *Instrument*, or *Wyer-Bells*, to know a *Third*, *Fifth*, and *Eighth*, which are the principal *Concords*: Or otherwise, let him get a *Pipe* called a *Pitch-pipe*, which may be made by any *Organ-maker*, to contain *eight Notes*, or more, (according to his pleasure) with their *Flatts* and *Sharps*, which will be very useful in the *Tuning of Bells*. And then this is a general Rule, begin at the *Tenor*, or *biggest Bell*, and count 3 *whole Notes*, then a *half Note*, or *Sharp*, 3 *whole Notes*, then a *half Note*, or *Sharp*; and so on, until you come to the *least Bell* or *Treble*. For example on *four Bells*, 1:234, here the 432 are *whole Notes*, and the *half Note* or *Sharp* is between 1 and 2. On *Five Bells*, 12:345 the 543 are *whole Notes*; and the *half Note* or *Sharp* is between 2 and 3. On *Six*, 123:456 the *half Note* or *Sharp* is between 3 and 4. On *Eight Bells*, 1:2345:678, one *half Note* or *Sharp* is between 5 and 6, and the other between 1 and 2. On *Ten*, 123:4567:8910; here one *half Note* is between 7 and 8, and the next between 3 and 4. On *Twelve Bells*, 12:345:6789:10 11 12. Here one *half Note* or *Sharp* is between 9 and 10, the next between 5 and 6, and the other between 2 and 3, which last is made contrary to the former Rule, it being but *two whole Notes* from the next *half Note* to it; the reason is this, the *Ninth* is one *whole Note* below the *Eighth*, therefore the 2 must be a *whole Note* below the *Treble*, otherwise they would not be a true *Eighth*, therefore the *half Note* is put between 2 and 3. Now he that hath these Rules, and a good ear to judge of the *Concords*, may at any time cast his Verdict (as to Bells, whether they are well in *Tune* or not) amongst the chief of the *Company*.

Of the *Changes*.

A *Change* is made between *two Bells* that strikes next to each other, by removing into each others places, as in these *two Figures* 1, 2. make a *Change* between them, and they will stand 2, 1. which is called a *Change*; make another *Change* between them, and they will stand in their right places, as at first, 1, 2. These *two Changes* are all that can be made on *two Bells*.

The *Changes* on three Bells.

On *three Bells* there are *six several Changes* to be made; in *Ringing* of which, there is *one Bell* to be observed, which is called the *Hunt*, and the other two are *Extream Bells* (but they cannot properly be so called, because every *Bell hunts* in the *six Changes*; yet because 'tis commonly *Rang* by observing a *Hunt* and *two Extream Bells*, I will therefore proceed in that course.) The name of *Hunt* is properly given to it, because of its continual motion up and down amongst the other *Bells*, which motion is called *Hunting*, and the other *two* are called *Extream Bells*, because when the *Hunt* is either before or behind them, that is at the *Extream*, or utmost place, there is a *Change* then to be made between them, called an *Extream Change*. There are two several ways to *Ring* the *six Changes*. One whereof is to make the *Treble* the *Hunt*, and the other way is to make the *Tenor* the *Hunt*. I will give an Example in *hunting* the *Treble*, the *Bells* are supposed to stand thus.—

1 2 3

Now the *Treble* must be *hunted* up over the *Second* and *Third*, which is to be done, by making a *Change* between the *Treble*, and each of those two Bells in order; therefore first I remove the *Treble* up over the *Second*, into the *seconds* place, by making a *Change* between the *Treble* and *Second*, thus.—

2 1 3

The *Treble* being removed up over the *Second*, it must next be removed up over the *Third*, as in this *Change*.—

2 3 1

Always observe, that when the *Hunt* moves from the foremost *Bell* toward the hindmost, then it *hunts* up, as in the *Changes* next before; but when it moves or *hunts* from the hindmost Bell, toward the Bell that leads, then it *hunts* down, as appears by the *Changes* following. The *Treble* being *hunted* up behind the *Extream Bells*, an *Extream Change* is next to be made between them.—

3 2 1

Here you may observe, that if the *Hunt* had been *hunted* down without an *Extream Change* first made, those *Changes* in *hunting* it down, would have been the same with those that were made in *hunting* it up.

The *Extream Change* being made, the *Treble* must be *hunted* down again before the Bells thus.—

3 1 2

1 3 2

The *Treble* being now *hunted* down, the next is to be an *Extream Change*.—

1 2 3

which is the last *Change* of the *six*.

The other way to *Ring* the *six Changes*, is, to make the *Tenor* the *Hunt*, which being behind already, it must first be *hunted* down, as in these *Changes*.—

1 2 3
1 3 2
3 1 2

The *Third*, which is the *Hunt*, being *hunted* down before the Bells, the *Extream Change* must next be made between the 2, and 1. Which are the *Extream Bells*, thus.—

3 2 1

The *Extream Change* being made, the *Third* must be *hunted* up again.—

2 3 1
2 1 3

The *Third* being *hunted* up, another *Extream* must be made, which brings the Bells round in their right places.—

1 2 3

The *Plain Changes* on four Bells.

On four Bells, there are *Twenty four several Changes*, in *Ringing* of which, there is one Bell called the *Hunt*, and the other three are *Extream* Bells; the *Hunt* moves, and *hunts* up and down continually, and lies but once in one place, except only when it comes before or behind the Bells, at which time it lies there twice together; it has the same course here, as in the *six Changes* before set down; two of the *Extream* Bells makes a *Change* every time the *Hunt* comes before or behind them. An Example I will here give, making the *Treble* the *Hunt*, and the *Extream Changes* I make between the two farthest *Extream* Bells from the *Hunt*. I set down the *four Figures*, representing the *four Bells*, thus.—

1 2 3 4

The *Treble* must now be *hunted* up behind the Bells, where it is to lie twice together, and then to *hunt* down before them, where it must lie twice, and then *hunt* up again as before. The *Hunt* is always one of the two Bells which makes every *Change*, except only when it comes before or behind the Bells, and it moves only over one Bell at a time; 'tis to be *hunted* up after this manner.—

2 1 3 4
2 3 1 4
2 3 4 1

The *Treble* being *hunted* up behind the Bells, as appears by the last *Changes*, the next is to be an *Extream Change* between the two farthest *Extream* Bells from the *Hunt*, which are the *Second* and *Third*, thus.—

3 2 4 1

The *Extream* being made, the *Treble* must be *hunted* down again, as in these *Changes*.—

3 2 1 4
3 1 2 4
1 3 2 4

The *Treble* being *hunted* down, there is another *Extream Change* to be made between the two farthest Bells from it, which are the *Second* and *Fourth*.—

1 3 4 2

The *Extream* being made, the *Treble* must be *hunted* as before, and so to the end of the *Peal*, making an *Extream Change* every time the *Hunt* comes before and behind the Bells.—

3 1 4 2
3 4 1 2
3 4 2 1
4 3 2 1
4 3 1 2
4 1 3 2
1 4 3 2
1 4 2 3
4 1 2 3

4 2 1 3
4 2 3 1
2 4 3 1
2 4 1 3
2 1 4 3
1 2 4 3
1 2 3 4

The Twenty-four Changes are to be Rang another way, in hunting up the Treble, which is, by making every Extream Change between the two nearest Bells to the Hunt, as in these Changes, first I hunt the Treble up.—

1 2 3 4
2 1 3 4
2 3 1 4
2 3 4 1

The Treble being hunted up, the Extream Change is to be made between the 3 and 4, which are the two nearest Bells to it, as in this Change,

2 4 3 1

and so to the end of the Peal, making every Extream between the two nearest Bells to the Hunt all the way.

These two ways in *Ringing the Twenty-four*, differs only in making the *Extream Changes*, one whereof is to make them between the two farthest *Extream* Bells from the *Hunt*, and the other to make them between the two nearest Bells to it.

The *Twenty-four Changes* are to be *Rang* two wayes more in *hunting* down the *Treble*; one way, is to make the *Extreams* between the two farthest Bells from the *Hunt*; and the other, is to make them between the two nearest, as before. A short Example I will set down, the Bells stand thus.—

1 2 3 4

The *Treble* should now be *hunted* down, but it being already before the Bells, insomuch that it can be removed no lower; therefore the first must be an *Extream Change*, either between the two nearest, or two farthest Bells from the *Hunt* at pleasure; the *Extream* being made, the *Treble* is to *hunt* up, and so to the end of the *Peal*, in the same course as before.

1 2 4 3
2 1 4 3
2 4 1 3
2 4 3 1
4 2 3 1
4 2 1 3
4 1 2 3
1 4 2 3
1 4 3 2
4 1 3 2
4 3 1 2
4 3 2 1
3 4 2 1
3 4 1 2
3 1 4 2

In *hunting* the *Second*, *Third*, or *Fourth*, there is to be observed the same course, as in *hunting* the *Treble*: A short Example I will set down, in *hunting* the *Third* up, and making the *Extream Changes* between the two farthest *Bells* from it.—

1 2 3 4
1 2 4 3
2 1 4 3
2 1 3 4
2 3 1 4
3 2 1 4

First, I *hunt* up the *third* over the *fourth*; the *Hunt* being up, I make an *extream* between the *treble* and *second*, and then *hunt* down the *third* again, as in these *changes*, which course is to be observed to the end of the *Peal*.

I have insisted the longer upon the directions to the *Twenty-four changes*, because it is the ground and method in *Ringing* all *plain changes*; and by understanding this aright, the Learner will more easily apprehend the course of all

plain and *single changes* whatsoever.

The *Twenty-four plain changes* are to be *Rang* sixteen several wayes; in *hunting* one Bell, it is to be *Rang* four wayes; that is, two wayes in *hunting* it up, and the other two wayes in *hunting* it down, (as appears in my directions before in *hunting* the *treble*;) so that in *hunting* the 4 Bells, 'tis to be *Rang* 4 times 4 wayes, which makes 16, some of which I have here set down.

Treble Hunt up, Extream between the 2 farthest Bells from it.

1 2 3 4
2 1 3 4
2 3 1 4
2 3 4 1
3 2 4 1
3 2 1 4
3 1 2 4
1 3 2 4
1 3 4 2
3 1 4 2
3 4 1 2
3 4 2 1
4 3 2 1
4 3 1 2
4 1 3 2
1 4 3 2
1 4 2 3
4 1 2 3
4 2 1 3
4 2 3 1
2 4 3 1
2 4 1 3
2 1 4 3
1 2 4 3
1 2 3 4

Second up, extream between the 2 nearest to it.

1 2 3 4
1 3 2 4
1 3 4 2
1 4 3 2
1 4 2 3
1 2 4 3
2 1 4 3
2 4 1 3
4 2 1 3
4 1 2 3
4 1 3 2
4 3 1 2
4 3 2 1
4 2 3 1
2 4 3 1
2 3 4 1
3 2 4 1
3 4 2 1
3 4 1 2
3 1 4 2
3 1 2 4
3 2 1 4
2 3 1 4
2 1 3 4
1 2 3 4

Fourth down, Extream between the two farthest Bells from it.

1 2 3 4
1 2 4 3
1 4 2 3
4 1 2 3
4 1 3 2
1 4 3 2
1 3 4 2
1 3 2 4
3 1 2 4
3 1 4 2
3 4 1 2
4 3 1 2
4 3 2 1
3 4 2 1
3 2 4 1
3 2 1 4
2 3 1 4
2 3 4 1
2 4 3 1
4 2 3 1
4 2 1 3
2 4 1 3
2 1 4 3
2 1 3 4
1 2 3 4

Some persons do observe to *Ring* the *Twenty-four changes* with a *whole Hunt*, and *half Hunt*; but that is an imperfect course; for there cannot be one *half hunt* only, but there will unavoidably be three *half Hunts* in one and the same *Twenty-four*; therefore I have set down the other way to *ring* it, by observing a *hunt*, and *three extream Bells*, which course is much more easie and true.

In the *Twenty-four Changes* are contained the *six Changes*; the *three Extream Bells* in the *Twenty-four* makes the *six Changes* in course, every *extream change* being one of the *six*, and the *Hunt* hunting through each of the *six Changes*, makes *Twenty-four*. For Example, take the *three Extream Bells* in the first *Twenty-four* set down before, which are 234, and set down the *six Changes* on them, thus.—

2 3 4
3 2 4
3 4 2
4 3 2
4 2 3
2 4 3
2 3 4

Now take the first *Change*, which is 234, set the *Treble* before it, and *hunt* it through, thus.—

1 2 3 4
2 1 3 4
2 3 1 4
2 3 4 1

The *Treble* being *hunted* up behinde, take the next *Change* of the *six*, which is 324, set it directly under the *First*, and *hunt* the *Treble* down through it, thus.—

3 2 4 1
3 2 1 4
3 1 2 4
1 3 2 4

And so take each of the other *six Changes*, and *hunt* the *Treble* through them, it will make *Twenty-four*.

I will here insert two or three old *Peals* on five Bells, which (though rejected in these dayes, yet) in former times were much in use, which for *Antiquity sake*, I here set down. And first,

The *Twenty* all over.

The course is this—every Bell *hunts* in order once through the Bells, until it comes behind them; and first the *Treble* *hunts* up, next the *Second*, and then the 3, 4 and 5, which brings the Bells round in their right places again, at the end of the *Twenty Changes*, as in this following *Peal*.—

1 2 3 4 5
2 1 3 4 5
2 3 1 4 5
2 3 4 1 5
2 3 4 5 1
3 2 4 5 1
3 4 2 5 1
3 4 5 2 1
3 4 5 1 2
4 3 5 1 2
4 5 3 1 2
4 5 1 3 2
4 5 1 2 3
5 4 1 2 3
5 1 4 2 3
5 1 2 4 3
5 1 2 3 4
1 5 2 3 4
1 2 5 3 4
1 2 3 5 4
1 2 3 4 5

This *Peal* is to be Rang, by hunting the Bells down, beginning with the Tenor, next the fourth, and so the third, second, and treble, which will bring the Bells round in course as before.

An Eight and Forty.

In this *Peal*, the *Fifth* and *Fourth* are both *whole Hunts*, each of which does *hunt* down before the Bells by turns, and lies there twice together and then *hunts* up again: The 1, 2 and 3 goes the *six changes*, one of which is made every time, either of the *whole Hunts* lies before the Bells, as in the following *Changes*, where the *fifth* hunts down the *first*; and lying before the Bells, there is a *change* made between the 1 & 2, which is one of the *six changes*; and then the *fifth* *hunts* up again into its place, and the *fourth* *hunts* down, which lying before the Bells, there is another of the *six changes* made between the 1 and 3, and then the *fourth* *hunts* up again, and the *fifth* *hunts* down next; in which course it continues to the end of the *Peal*, each of the *whole Hunts* lying but twice at one time before the Bells, as in these following *changes*.

1 2 3 4 5
1 2 3 5 4
1 2 5 3 4
1 5 2 3 4
5 1 2 3 4
5 2 1 3 4
2 5 1 3 4
2 1 5 3 4
2 1 3 5 4
2 1 3 4 5
2 1 4 3 5
2 4 1 3 5
4 2 1 3 5
4 2 3 1 5
2 4 3 1 5
2 3 4 1 5
2 3 1 4 5
2 3 1 5 4
2 3 5 1 4
2 5 3 1 4
5 2 3 1 4
5 3 2 1 4
3 5 2 1 4

3 2 5 1 4
3 2 1 5 4
3 2 1 4 5
3 2 4 1 5
3 4 2 1 5
4 3 2 1 5
4 3 1 2 5
3 4 1 2 5
3 1 4 2 5
3 1 2 4 5
3 1 2 5 4
3 1 5 2 4
3 5 1 2 4
5 3 1 2 4
5 1 3 2 4
1 5 3 2 4
1 3 5 2 4
1 3 2 5 4
1 3 2 4 5
1 3 4 2 5
1 4 3 2 5
4 1 3 2 5
4 1 2 3 5
1 4 2 3 5
1 2 4 3 5
1 2 3 4 5

Cambridge Eight and Forty.

Wherein it is observed, that the *Treble* and *Second* does never come behind, neither does the *Fifth* and *Fourth* come before, as in the following *Changes*.

1 2 3 4 5
2 1 3 4 5
2 1 3 5 4
2 1 5 3 4
2 5 1 3 4
2 5 3 1 4
2 3 5 1 4
2 3 1 5 4
3 2 1 5 4
3 2 5 1 4
3 5 2 1 4
3 5 1 2 4
3 1 5 2 4
3 1 2 5 4
3 1 2 4 5
3 1 4 2 5
3 4 1 2 5
3 4 2 1 5
3 2 4 1 5
3 2 1 4 5
2 3 1 4 5
2 3 4 1 5
2 4 3 1 5
2 4 1 3 5
2 1 4 3 5
2 1 4 5 3
2 4 1 5 3
2 4 5 1 3
2 5 4 1 3
2 5 1 4 3

2 1 5 4 3
 1 2 5 4 3
 1 5 2 4 3
 1 5 4 2 3
 1 4 5 2 3
 1 4 2 5 3
 1 2 4 5 3
 1 2 4 3 5
 1 4 2 3 5
 1 4 3 2 5
 1 3 4 2 5
 1 3 2 4 5
 1 3 2 5 4
 1 3 5 2 4
 1 5 3 2 4
 1 5 2 3 4
 1 2 5 3 4
 1 2 3 5 4
 1 2 3 4 5

The *Plain Changes* on five Bells.

There are *Six-score Changes* to be *Rang* on *five Bells*, which are to be *Rang*, by observing a *whole Hunt*, a *half Hunt*, and *three Extream Bells*; the course of the *whole Hunt*, is the same with the *Hunt* in the *Twenty-four Changes*, and *hunts* up and down in the same manner. The *half Hunt* moves once, that is, over one Bell every time, the *whole Hunt* comes before and behind the Bells; but when the *half Hunt* is removed either before or behind the *Extream Bells*, then there is an *Extream Change* to be made. For Example, I make the *Treble* the *whole Hunt*, and *hunt* it up; and the *Second* the *half Hunt* and *half hunt* it up, making every *Extream Change* between the two farthest *Extream Bells* from the *half Hunt*; the *Extream Bells* are the *Third, Fourth, Fifth*: Now observe, that whereas in the *Twenty-four Changes*, an *Extream Change* was always made, when the *whole Hunt* came before or behind the *Bells*, in these *Six-score Changes* an *Extream* is always to be made, when the *Half Hunt* comes before or behind the *Extream Bells*; first the *Treble* is to be *hunted* up, as in these *Changes*.—

1 2 3 4 5
 2 1 3 4 5
 2 3 1 4 5
 2 3 4 1 5
 2 3 4 5 1

The *whole Hunt* being *hunted* up, the *Second*, which is the *half Hunt*, must be *hunted* up over one *Bell*, as in this *Change*.—

3 2 4 5 1

The *half Hunt* being removed up over one *Bell*, the *whole Hunt* must be *hunted* down again, as in these *Changes*.—

3 2 4 1 5
 3 2 1 4 5
 3 1 2 4 5
 1 3 2 4 5

The *whole Hunt* being *hunted* down, the *half Hunt* is to be removed up over the *Fourth*, which is the next *Bell* to it.—

1 3 4 2 5

The *whole Hunt* is to *hunt* up as before.—

3 1 4 2 5
 3 4 1 2 5
 3 4 2 1 5
 3 4 2 5 1

Now the *half Hunt* is to be *hunted* up over the *Fifth*, which is the next *Bell* to it, thus.—

3 4 5 2 1

Here the *Second*, which is the *half Hunt*, is removed quite up behind the *Extream Bells*; yet the *Extream Change* is not to be made, until the *whole Hunt* has removed down through the *Bells*, as in these *Changes*.—

3 4 5 1 2
3 4 1 5 2
3 1 4 5 2
1 3 4 5 2

And it is a constant Rule, that whensoever the *half Hunt* has removed up behind the *Extream Bells*, or down before them, the *whole Hunt* must *hunt* through the Bells, before the *Extream Change* is made, as in the last *Change* but four, which is 3, 4, 5, 2, 1. the *Second* being the *half Hunt*, is removed up behind the 3, 4, and 5. which are the *Extream Bells*; and then the *whole Hunt* being behind, *hunts* immediately down; and now the *Extream Change* is to be made between the 3, and 4. which are the two farthest *Extream Bells* from the *half Hunt*, as in this *Change*.—

1 4 3 5 2

The *Extream* being made, the *whole Hunt* and *half Hunt* are to remove again; and first the *whole Hunt* must be *hunted* up.—

4 1 3 5 2
4 3 1 5 2
4 3 5 1 2
4 3 5 2 1

Now the *half Hunt* is to be *hunted* down under one Bell, thus.—

4 3 2 5 1

The *half Hunt* being removed, the *whole Hunt* is to be *hunted* down.—

4 3 2 1 5
4 3 1 2 5
4 1 3 2 5
1 4 3 2 5

The *half Hunt* is to be removed down under another Bell, as in this *Change*.—

1 4 2 3 5

Now I hunt up the Treble.—

4 1 2 3 5
4 2 1 3 5
4 2 3 1 5
4 2 3 5 1

The Treble being *hunted* up, I *hunt* down the *Second* before the *Extream Bells*.—

2 4 3 5 1

Now I *hunt* down the Treble again, and then make the *Extream Change*, as in these *Changes*.—

2 4 3 1 5
2 4 1 3 5
2 1 4 3 5
1 2 4 3 5
1 2 4 5 3

The last is the *Extream Change*, which is made between the *Third* and *Fifth*; and this course is to be observed to the end of the *Six-score Changes*, which is set down at large at the end of the directions to this *Peal*.

Another short Example I will insert, which is *Second* down, and *Fourth* up, (for that is the common Phrase amongst *Ringers*) whereby 'tis alwayes to be observed, that the first Bell which is named, is the *whole Hunt*, and the second that is named, is the *half Hunt*, as herein you may perceive; where *Second* down, is meant, that the *Second* Bell is the *whole Hunt*, and to *hunt* down the first *Change*; and the *Fourth* Bell is the *half Hunt*, and to *half hunt* up, that is, to move up towards the hindmost Bell the first time it moves at the beginning of the *Peal*; which are only directions in making the first *Changes*, for one *whole Hunt* and *half Hunt* may be hunted several wayes, either up or down at pleasure. First, I *hunt* down the *Second*.—

1 2 3 4 5
2 1 3 4 5

The *Second* being *hunted* down, the *Fourth*, which is the *half Hunt*, must be removed up over one Bell, thus.—

2 1 3 5 4

The *half Hunt* being removed, I must *hunt* up the *Second*, as in these *Changes*.—

- 1 2 3 5 4
- 1 3 2 5 4
- 1 3 5 2 4
- 1 3 5 4 2
- 3 1 5 4 2
- 3 1 5 2 4
- 3 1 2 5 4
- 3 2 1 5 4
- 2 3 1 5 4
- 2 3 1 4 5

Now the *Fourth*, which is the *half Hunt*, being behind the *Extream* Bells, the next is to be an *Extream Change*, which may be made either between the two farthest Bells from the *half Hunt*, or the two nearest to it; and after the *Extream Change* is made, the *whole Hunt* and *half Hunt* must be *hunted* as before. These *Six-score Changes* of *Second* and *Fourth*, I have set down at large, at the end of my directions to these *Changes* on five Bells.

In every *Six-score*, the *Extream Changes* may be made either between the two farthest *Extream* Bells from the *half Hunt*, or between the two nearest to it, observing to make all the *Extreams* in one *Six-score* alike; that is, if you make the first *Extream Change* between the two farthest *Extream* Bells from the *half Hunt*, you must make all the following *Extreams* in the same *Six score* between the two farthest *Extream* Bells also; or if you make the first *Extream* in any *Six-score* between the two nearest to the *half Hunt*, you must make all the following *Extreams* in the same *Six-score* between the two nearest also.

The *Six-score* plain and single *Changes*, are to be *Rang* Eight-score several wayes; for although there are but *Six-score* several *Changes* on five *Bells*, yet by altering the *whole Hunt*, the *half Hunt*, and *Extreams*, the course of the *Changes* are so altered, that the same *Changes* doe not come all along together in any two of those Eight-score wayes.

With one *whole Hunt* and *half Hunt*, the *Six-score Changes* are to be *Rang*, or set down eight several wayes; one way, is by *hunting* the *whole Hunt*, and *half Hunt* both up; the second way, is by *hunting* the *whole Hunt* and *half Hunt* both down; the third way, is in *hunting* the *whole Hunt* up, and the *half Hunt* down; the fourth way, is by *hunting* the *whole Hunt* down, and the *half Hunt* up; each of these four wayes is to be *Rang* two wayes more; one is, in making the *Extreams* between the two farthest *Extream* Bells from the *half Hunt*, and the other way is in making them between the two nearest; for Example, in making the treble the *whole Hunt*, and second the *half Hunt*, the *Six-score* are to be *Rang* eight several wayes (*viz.*)

- Treble and second both up
 - Treble and second both down
 - Treble down, and second up
 - Treble up, and second down
- } *Extream Changes* to be made between the 2 farthest *Extream* Bells from the *half Hunt*.

- Treble and second both up
 - Treble and second both down
 - Treble down, and second up
 - Treble up, and second down
- } *Extream Changes* to be made between the two nearest *Extream* Bells to the *half Hunt*, which is called *Mediums*.

On five Bells there are 20 Hunts, (*i.e.*) a whole Hunt, and half Hunt twenty times, and not one; and the same whole Hunt, and half Hunt twice, as appears by the following Figures, where they stand two and two together; one of which is the whole Hunt, and the other the half Hunt: for Example, the 2 highest Figures are 1.2 where the treble is the whole Hunt, and the second the half Hunt. The two next Figures are 1.3 where the treble is the whole Hunt, and the third the half Hunt; and likewise the two last, or lowest Figures, are 5.4 the fifth is the whole Hunt, and the fourth the half Hunt; and so of all the rest, the first Figure representing the whole Hunt, and the next to it the half Hunt.

- 1.2 2.1 3.1 4.1 5.1
- 1.3 2.3 3.2 4.2 5.2
- 1.4 2.4 3.4 4.3 5.3
- 1.5 2.5 3.5 4.5 5.4

So that there being twenty Hunts, and every one making eight *Six-scores* (as in the Example of treble and second) that

is twenty (which are the number of Hunts;) multiplied by eight (which are the number of Six-scores made by each Hunt) does produce Eight-score several ways to Ring the Six-score Changes.

In the Six-score Changes are comprehended the Twenty-four, and the Six Changes: The Twenty-four Changes are made between the half Hunt, and the three Extream Bells; and the Six are made between the Extream Bells alone: The half Hunt in the Six-score, is the whole Hunt in the Twenty-four; and there is one Change in the Twenty-four made every time the whole Hunt comes before and behind the Bells; and one Change in the Six made every Extream: So that the Six-score rightly understood, is nothing else but hunting the half Hunt through every Change of the Six, which makes Twenty-four Changes: and then hunting the whole Hunt through each Change of the Twenty-four, which makes Six-score; for instance, in the first Six-score before set down, where the treble is the whole Hunt, the second the half Hunt, and the 345 the Extream Bells.

I take the Extream Bells, and set down the six Changes on them thus.—

3 4 5
4 3 5
4 5 3
5 4 3
5 3 4
3 5 4
3 4 5

Now I take the first of the six, which is 345, and set the second (which was the half Hunt in the Six-score) to it, and hunt it up behind thus.—

2 3 4 5
3 2 4 5
3 4 2 5
3 4 5 2

Now I take the second Change of the six, which is 435, and set it directly under 345, and the second Bell to it, and hunt it down thus.—

4 3 5 2
4 3 2 5
4 2 3 5
2 4 3 5

The second being hunted through the Change, I take the third Change in the six, which is 453, and hunt the second Bell through it, as before.—

2 4 5 3
4 2 5 3
4 5 2 3
4 5 3 2

And in the same course, the second being hunted through each Change of the six, will make Twenty-four, one Change of the six, hunting the second Bell through it, makes four Changes; so that the six Changes by hunting the second through each of them, will make six times four Changes (*i.e.*) Twenty-four. And now hunt the Treble through each of the Twenty-four Changes, and 'twill make Six-score; the first of the Twenty-four is 2345, take the Treble, and hunt it through it thus.—

1 2 3 4 5
2 1 3 4 5
2 3 1 4 5
2 3 4 1 5
2 3 4 5 1

Now take the next Change of the Twenty-four, which is 3245, set it under the other Change, and hunt the Treble through it thus.—

3 2 4 5 1
3 2 4 1 5
3 2 1 4 5
3 1 2 4 5
1 3 2 4 5

And in the same manner, hunting the Treble through each Change of the Twenty-four, will produce Twenty-four times five Changes, which makes Six-score; one Change of the Twenty-four (in hunting the Treble through it) makes five Changes.

In every Six-score on 5 Bells, there are 6 Extream Changes, there being twenty Changes from one Extream to another.

It would be an endless undertaking to set down all these Peals at large, but for the convenience of the Learner, I have set down some part of several of them, which may with ease be prickt out to the end of each Peal, as the Learner pleases.

Note, That in the following Peals there is a Line drawn at each Extream Change between the Figures, to shew where the Extreams are made; as in the next Peal there is a Line drawn between the Figures just 20 Changes from the beginning of the Peal, the change next after the Line is the Extream Change, which is 14352, and so of the rest; the Change next following each Line is the Extream.

Treble and second both up, Extream between the two farthest Extream Bells from the half Hunt.

1 2 3 4 5
2 1 3 4 5
2 3 1 4 5
2 3 4 1 5
2 3 4 5 1
3 2 4 5 1
3 2 4 1 5
3 2 1 4 5
3 1 2 4 5
1 3 2 4 5
1 3 4 2 5
3 1 4 2 5
3 4 1 2 5
3 4 2 1 5
3 4 2 5 1
3 4 5 2 1
3 4 5 1 2
3 4 1 5 2
3 1 4 5 2
1 3 4 5 2

1 4 3 5 2
4 1 3 5 2
4 3 1 5 2
4 3 5 1 2
4 3 5 2 1
4 3 2 5 1
4 3 2 1 5
4 3 1 2 5
4 1 3 2 5
1 4 3 2 5
1 4 2 3 5
4 1 2 3 5
4 2 1 3 5
4 2 3 1 5
4 2 3 5 1
2 4 3 5 1
2 4 3 1 5
2 4 1 3 5
2 1 4 3 5
1 2 4 3 5

1 2 4 5 3
2 1 4 5 3
2 4 1 5 3
2 4 5 1 3
2 4 5 3 1
4 2 5 3 1
4 2 5 1 3
4 2 1 5 3

41253
14253
14523
41523
45123
45213
45231
45321
45312
45132
41532
14532

15432
51432
54132
54312
54321
54231
54213
54123
51423
15423
15243
51243
52143
52413
52431
25431
25413
25143
21543
12543

12534
21534
25134
25314
25341
52341
52314
52134
51234
15234
15324
51324
53124
53214
53241
53421
53412
53142
51342
15342

13542
31542
35142
35412
35421
35241
35214

3 5 1 2 4
3 1 5 2 4
1 3 5 2 4
1 3 2 5 4
3 1 2 5 4
3 2 1 5 4
3 2 5 1 4
3 2 5 4 1
2 3 5 4 1
2 3 5 1 4
2 3 1 5 4
2 1 3 5 4
1 2 3 5 4

1 2 3 4 5

Treble up, fifth down, Extreams between the two farthest Extream Bells from the half Hunt.

1 2 3 4 5
2 1 3 4 5
2 3 1 4 5
2 3 4 1 5
2 3 4 5 1
2 3 5 4 1
2 3 5 1 4
2 3 1 5 4
2 1 3 5 4
1 2 3 5 4
1 2 5 3 4
2 1 5 3 4
2 5 1 3 4
2 5 3 1 4
2 5 3 4 1
5 2 3 4 1
5 2 3 1 4
5 2 1 3 4
5 1 2 3 4
1 5 2 3 4

1 5 2 4 3
5 1 2 4 3
5 2 1 4 3
5 2 4 1 3
5 2 4 3 1
2 5 4 3 1
2 5 4 1 3
2 5 1 4 3
2 1 5 4 3
1 2 5 4 3
1 2 4 5 3
2 1 4 5 3
2 4 1 5 3
2 4 5 1 3
2 4 5 3 1
2 4 3 5 1
2 4 3 1 5
2 4 1 3 5
2 1 4 3 5
1 2 4 3 5

1 4 2 3 5
4 1 2 3 5

4 2 1 3 5
4 2 3 1 5
4 2 3 5 1
4 2 5 3 1
4 2 5 1 3
4 2 1 5 3
4 1 2 5 3
1 4 2 5 3
1 4 5 2 3
4 1 5 2 3
4 5 1 2 3
4 5 2 1 3
4 5 2 3 1
5 4 2 3 1
5 4 2 1 3
5 4 1 2 3
5 1 4 2 3
1 5 4 2 3

1 5 4 3 2
5 1 4 3 2
5 4 1 3 2
5 4 3 1 2
5 4 3 2 1
4 5 3 2 1
4 5 3 1 2
4 5 1 3 2
4 1 5 3 2
1 4 5 3 2
1 4 3 5 2
4 1 3 5 2
4 3 1 5 2
4 3 5 1 2
4 3 5 2 1
4 3 2 5 1
4 3 2 1 5
4 3 1 2 5
4 1 3 2 5
1 4 3 2 5

1 3 4 2 5
3 1 4 2 5
3 4 1 2 5
3 4 2 1 5
3 4 2 5 1
3 4 5 2 1
3 4 5 1 2
3 4 1 5 2
3 1 4 5 2
1 3 4 5 2
1 3 5 4 2
3 1 5 4 2
3 5 1 4 2
3 5 4 1 2
3 5 4 2 1
5 3 4 2 1
5 3 4 1 2
5 3 1 4 2
5 1 3 4 2
1 5 3 4 2

1 5 3 2 4

5 1 3 2 4
5 3 1 2 4
5 3 2 1 4
5 3 2 4 1
3 5 2 4 1
3 5 2 1 4
3 5 1 2 4
3 1 5 2 4
1 3 5 2 4
1 3 2 5 4
3 1 2 5 4
3 2 1 5 4
3 2 5 1 4
3 2 5 4 1
3 2 4 5 1
3 2 4 1 5
3 2 1 4 5
3 1 2 4 5
1 3 2 4 5

1 2 3 4 5

Second down, and fourth up, Extream between the two farthest Bells from the half Hunt.

1 2 3 4 5
2 1 3 4 5
2 1 3 5 4
1 2 3 5 4
1 3 2 5 4
1 3 5 2 4
1 3 5 4 2

3 1 5 4 2
3 1 5 2 4
3 1 2 5 4
3 2 1 5 4
2 3 1 5 4
2 3 1 4 5
3 2 1 4 5
3 1 2 4 5
3 1 4 2 5
3 1 4 5 2
3 4 1 5 2
3 4 1 2 5
3 4 2 1 5
3 2 4 1 5
2 3 4 1 5
2 4 3 1 5
4 2 3 1 5
4 3 2 1 5
4 3 1 2 5
4 3 1 5 2

4 3 5 1 2
4 3 5 2 1
4 3 2 5 1
4 2 3 5 1
2 4 3 5 1
2 3 4 5 1

Second and third both down, Extream between the two farthest Extream Bells from the half Hunt.

1 2 3 4 5
2 1 3 4 5
2 3 1 4 5
3 2 1 4 5
3 1 2 4 5
3 1 4 2 5
3 1 4 5 2

3 1 5 4 2
3 1 5 2 4
3 1 2 5 4
3 2 1 5 4
2 3 1 5 4
2 1 3 5 4
1 2 3 5 4
1 3 2 5 4
1 3 5 2 4
1 3 5 4 2
1 5 3 4 2
1 5 3 2 4
1 5 2 3 4
1 2 5 3 4
2 1 5 3 4
2 1 5 4 3
1 2 5 4 3
1 5 2 4 3
1 5 4 2 3
1 5 4 3 2
5 1 4 3 2
5 1 4 2 3
5 1 2 4 3
5 2 1 4 3

Third and fifth both up, Extream between the two farthest Extream Bells from the half Hunt.

1 2 3 4 5
1 2 4 3 5
1 2 4 5 3

2 1 4 5 3
2 1 4 3 5
2 1 3 4 5
2 3 1 4 5
3 2 1 4 5
3 2 1 5 4
2 3 1 5 4
2 1 3 5 4
2 1 5 3 4
2 1 5 4 3
2 5 1 4 3
2 5 1 3 4
2 5 3 1 4
2 3 5 1 4
3 2 5 1 4
3 5 2 1 4
5 3 2 1 4
5 2 3 1 4
5 2 1 3 4
5 2 1 4 3

5 2 4 1 3

5 2 4 3 1

Fourth down, Treble up, Extream between the two nearest Extream Bells to the half Hunt.

1 2 3 4 5
1 2 4 3 5
1 4 2 3 5
4 1 2 3 5
4 2 1 3 5
2 4 1 3 5
2 1 4 3 5
2 1 3 4 5
2 1 3 5 4
2 3 1 5 4
2 3 1 4 5
2 3 4 1 5
2 4 3 1 5
4 2 3 1 5
4 2 3 5 1
2 4 3 5 1
2 3 4 5 1
2 3 5 4 1
2 3 5 1 4

2 5 3 1 4
2 5 3 4 1
2 5 4 3 1
2 4 5 3 1
4 2 5 3 1
4 2 5 1 3
2 4 5 1 3
2 5 4 1 3
2 5 1 4 3
2 5 1 3 4
2 1 5 3 4
2 1 5 4 3
2 1 4 5 3
2 4 1 5 3
4 2 1 5 3
4 1 2 5 3
1 4 2 5 3
1 2 4 5 3
1 2 5 4 3
1 2 5 3 4

1 5 2 3 4
1 5 2 4 3
1 5 4 2 3
1 4 5 2 3
4 1 5 2 3
4 5 1 2 3
5 4 1 2 3
5 1 4 2 3
5 1 2 4 3
5 1 2 3 4
5 2 1 3 4
5 2 1 4 3
5 2 4 1 3
5 4 2 1 3
4 5 2 1 3
4 5 2 3 1
5 4 2 3 1

5 2 4 3 1
5 2 3 4 1
5 2 3 1 4

5 3 2 1 4
5 3 2 4 1

Fifth down, treble up, Extream Changes between the two farthest Extream Bells from the Half Hunt.

1 2 3 4 5
1 2 3 5 4
1 2 5 3 4
1 5 2 3 4
5 1 2 3 4
5 2 1 3 4
2 5 1 3 4
2 1 5 3 4
2 1 3 5 4
2 1 3 4 5
2 3 1 4 5
2 3 1 5 4
2 3 5 1 4
2 5 3 1 4
5 2 3 1 4
5 2 3 4 1
2 5 3 4 1
2 3 5 4 1
2 3 4 5 1
2 3 4 1 5
3 2 4 1 5
3 2 4 5 1
3 2 5 4 1
3 5 2 4 1
5 3 2 4 1
5 3 2 1 4
3 5 2 1 4
3 2 5 1 4
3 2 1 5 4
3 2 1 4 5
3 1 2 4 5
3 1 2 5 4

Treble & second both down.

1 2 3 4 5
1 2 3 5 4
2 1 3 5 4
2 3 1 5 4
2 3 5 1 4
2 3 5 4 1
3 2 5 4 1
3 2 5 1 4
3 2 1 5 4
3 1 2 5 4
1 3 2 5 4
1 3 5 2 4
3 1 5 2 4
3 5 1 2 4
3 5 2 1 4
3 5 2 4 1
3 5 4 2 1

Second & treble both down.

1 2 3 4 5
2 1 3 4 5
2 1 3 5 4
1 2 3 5 4
1 3 2 5 4
1 3 5 2 4
1 3 5 4 2
3 1 5 4 2
3 1 5 2 4
3 1 2 5 4
3 2 1 5 4
2 3 1 5 4
2 3 5 1 4
3 2 5 1 4
3 5 2 1 4
3 5 1 2 4
3 5 1 4 2
3 5 4 1 2

The Changes on six Bells.

On six Bells there are Seven-hundred and twenty Changes to be made; but there are Peals of Six-score and Twelve-score Changes to be Rang on them. The Six-score Changes are to be made, by observing a whole Hunt and half Hunt, which are to be hunted in the same course, as in the Six-score on five Bells, and the Extream Changes to be made by the same Rule as they were on five Bells. The only difference between the Six-score on six Bells, and those on five, are this; whereas on five there are but three Extream Bells, on six there are four Extream Bells. And on five Bells, there are six Extream Changes in every Six-score; but on six, there are but four Extream Changes. And moreover, whereas in every Six-score on five Bells, the Changes were the same in each, although altered in course; but the Changes on six Bells are not the same in each, for several Six-scores has several Changes, one Six-score having many Changes which another has not, as in this Peal, treble and second both up, which is,

1 2 3 4 5 6
2 1 3 4 5 6
2 3 1 4 5 6
2 3 4 1 5 6
2 3 4 5 1 6
2 3 4 5 6 1
3 2 4 5 6 1
3 2 4 5 1 6
3 2 4 1 5 6
3 2 1 4 5 6
3 1 2 4 5 6
1 3 2 4 5 6
1 3 4 2 5 6
3 1 4 2 5 6
3 4 1 2 5 6
3 4 2 1 5 6
3 4 2 5 1 6
3 4 2 5 6 1
3 4 5 2 6 1
3 4 5 2 1 6
3 4 5 1 2 6
3 4 1 5 2 6
3 1 4 5 2 6
1 3 4 5 2 6
1 3 4 5 6 2
3 1 4 5 6 2
3 4 1 5 6 2
3 4 5 1 6 2
3 4 5 6 1 2
3 4 5 6 2 1

435621
435612
435162
431562
413562
143562
143526
413526
431526
435126
435216
435261
432561
432516
432156
431256
413256
143256
142356
412356
421356
423156
423516
423561
243561
243516
243156
241356
214356
124356

124365
214365
241365
243165
243615
243651
423651
423615
423165
421365
412365
142365
143265
413265
431265
432165
432615
432651
436251
436215
436125
431625
413625
143625
143652
413652
431652
436152
436512
436521

3 4 6 5 2 1
 3 4 6 5 1 2
 3 4 6 1 5 2
 3 4 1 6 5 2
 3 1 4 6 5 2
 1 3 4 6 5 2
 1 3 4 6 2 5
 3 1 4 6 2 5
 3 4 1 6 2 5
 3 4 6 1 2 5
 3 4 6 2 1 5
 3 4 6 2 5 1
 3 4 2 6 5 1
 3 4 2 6 1 5
 3 4 2 1 6 5
 3 4 1 2 6 5
 3 1 4 2 6 5
 1 3 4 2 6 5
 1 3 2 4 6 5
 3 1 2 4 6 5
 3 2 1 4 6 5
 3 2 4 1 6 5
 3 2 4 6 1 5
 3 2 4 6 5 1
 2 3 4 6 5 1
 2 3 4 6 1 5
 2 3 4 1 6 5
 2 3 1 4 6 5
 2 1 3 4 6 5
 1 2 3 4 6 5

1 2 3 4 5 6

There are other Peals to be Rang on six Bells, as Six-scores on the five smallest, the tenor lying behind all the way. Treble and second, or treble and fifth, with the tenor lying behind, makes very good Musick: Of which Peals I need not give you any Example, these Six-scores being the same with those on five Bells set down before.

The Twelve-score Changes being only part of the Seven-hundred and twenty, and consequently the course of each being one and the same, I will therefore shew the course and method of the Seven-hundred and twenty, wherein the Twelve-score Changes are also included.

In Ringing the Seven-hundred and Twenty, there is a whole Hunt, a half Hunt, a quarter Hunt, and three Extream Bells; the whole Hunt and half Hunt does hunt in the same course and method, as they did in the Six-score on five Bells, and in the last Six-score; and the quarter Hunt removes in the same course under the half Hunt, as the half Hunt does under the whole Hunt: for instance, when the whole Hunt is hunted either before or behind the Bells, then the half Hunt removes over one Bell; and when the half Hunt is removed before or behind the quarter Hunt and Extream Bells (at which time in a Six-score the Extream is made) then the quarter Hunt removes over one Bell, in the same course as the half hunt moves, when the whole Hunt is before or behind. An Example I will set down, which is 1, 2 and 3 all up, that is to say, treble the whole Hunt, and to hunt up, second the half Hunt, and to half hunt up, and third the quarter Hunt, and to quarter hunt up 4, 5 and 6 are Extream Bells; there is always an Extream Change to be made when the quarter Hunt comes before or behind the Extream Bells, there are two wayes to make the Extreames, which are the same here, as in the Six-score on five, and made by the same Rule, I will here make it between the two farthest Extream Bells from the quarter Hunt. Now the treble and second being the whole Hunt and half Hunt, must be hunted in the same course, as in the Six-score on five Bells, after this manner.

1 2 3 4 5 6
 2 1 3 4 5 6
 2 3 1 4 5 6
 2 3 4 1 5 6
 2 3 4 5 1 6
 2 3 4 5 6 1
 3 2 4 5 6 1
 3 2 4 5 1 6
 3 2 4 1 5 6
 3 2 1 4 5 6
 3 1 2 4 5 6

1 3 2 4 5 6
1 3 4 2 5 6
3 1 4 2 5 6
3 4 1 2 5 6
3 4 2 1 5 6
3 4 2 5 1 6
3 4 2 5 6 1
3 4 5 2 6 1
3 4 5 2 1 6
3 4 5 1 2 6
3 4 1 5 2 6
3 1 4 5 2 6
1 3 4 5 2 6
1 3 4 5 6 2
3 1 4 5 6 2
3 4 1 5 6 2
3 4 5 1 6 2
3 4 5 6 1 2
3 4 5 6 2 1

The half Hunt being hunted up, the third is to remove up over one Bell, and then the whole Hunt and half Hunt to remove again thus.

4 3 5 6 2 1
4 3 5 6 1 2
4 3 5 1 6 2
4 3 1 5 6 2
4 1 3 5 6 2
1 4 3 5 6 2
1 4 3 5 2 6
4 1 3 5 2 6
4 3 1 5 2 6
4 3 5 1 2 6
4 3 5 2 1 6
4 3 5 2 6 1
4 3 2 5 6 1
4 3 2 5 1 6
4 3 2 1 5 6
4 3 1 2 5 6
4 1 3 2 5 6
1 4 3 2 5 6
1 4 2 3 5 6
4 1 2 3 5 6
4 2 1 3 5 6
4 2 3 1 5 6
4 2 3 5 1 6
4 2 3 5 6 1
2 4 3 5 6 1
2 4 3 5 1 6
2 4 3 1 5 6
2 4 1 3 5 6
2 1 4 3 5 6
1 2 4 3 5 6

The whole Hunt and half Hunt being hunted down, the quarter Hunt must remove up over the fifth, and then the whole Hunt and half Hunt must hunt up again, as in the following Changes.

1 2 4 5 3 6
2 1 4 5 3 6
2 4 1 5 3 6
2 4 5 1 3 6
2 4 5 3 1 6
2 4 5 3 6 1

4 2 5 3 6 1
4 2 5 3 1 6
4 2 5 1 3 6
4 2 1 5 3 6
4 1 2 5 3 6
1 4 2 5 3 6
1 4 5 2 3 6
4 1 5 2 3 6
4 5 1 2 3 6
4 5 2 1 3 6
4 5 2 3 1 6
4 5 2 3 6 1
4 5 3 2 6 1
4 5 3 2 1 6
4 5 3 1 2 6
4 5 1 3 2 6
4 1 5 3 2 6
1 4 5 3 2 6
1 4 5 3 6 2
4 1 5 3 6 2
4 5 1 3 6 2
4 5 3 1 6 2
4 5 3 6 1 2
4 5 3 6 2 1

The whole Hunt and half Hunt being hunted up, the quarter Hunt must be removed quite up over the sixth, as in this Change

4 5 6 3 2 1

the quarter Hunt being hunted up behind the Extream Bells, yet the Extream Change is not to be made, until the whole Hunt and half Hunt have both removed thorough the Bells, as in these Changes.

4 5 6 3 1 2
4 5 6 1 3 2
4 5 1 6 3 2
4 1 5 6 3 2
1 4 5 6 3 2
1 4 5 6 2 3
4 1 5 6 2 3
4 5 1 6 2 3
4 5 6 1 2 3
4 5 6 2 1 3
4 5 6 2 3 1
4 5 2 6 3 1
4 5 2 6 1 3
4 5 2 1 6 3
4 5 1 2 6 3
4 1 5 2 6 3
1 4 5 2 6 3
1 4 2 5 6 3
4 1 2 5 6 3
4 2 1 5 6 3
4 2 5 1 6 3
4 2 5 6 1 3
4 2 5 6 3 1
2 4 5 6 3 1
2 4 5 6 1 3
2 4 5 1 6 3
2 4 1 5 6 3
2 1 4 5 6 3
1 2 4 5 6 3

It is to be observed for a constant Rule, that when the quarter Hunt removes either quite up behind the Extream Bells,

or down before them, the whole Hunt and half Hunt must hunt through the Bells before the Extream Change is to be made, as appears by the last Changes.

The Extream Change is now to be made between the 4 and 5, being the two farthest Extream Bells from the third, which is the quarter Hunt, thus.—

1 2 5 4 6 3

The Extream being made, the whole Hunt, half Hunt, and quarter Hunt must be hunted as before; and first the whole Hunt and half Hunt are to be hunted up, as in these Changes.

2 1 5 4 6 3

2 5 1 4 6 3

2 5 4 1 6 3

2 5 4 6 1 3

2 5 4 6 3 1

5 2 4 6 3 1

5 2 4 6 1 3

5 2 4 1 6 3

5 2 1 4 6 3

5 1 2 4 6 3

1 5 2 4 6 3

1 5 4 2 6 3

5 1 4 2 6 3

5 4 1 2 6 3

5 4 2 1 6 3

5 4 2 6 1 3

5 4 2 6 3 1

5 4 6 2 3 1

5 4 6 2 1 3

5 4 6 1 2 3

5 4 1 6 2 3

5 1 4 6 2 3

1 5 4 6 2 3

1 5 4 6 3 2

5 1 4 6 3 2

5 4 1 6 3 2

5 4 6 1 3 2

5 4 6 3 1 2

5 4 6 3 2 1

The whole Hunt and half Hunt being hunted up, the quarter Hunt must hunt down under the sixth, which is the next Bell to it, and then the whole Hunt and half Hunt must hunt down again, as in the Changes following.

5 4 3 6 2 1

5 4 3 6 1 2

5 4 3 1 6 2

5 4 1 3 6 2

5 1 4 3 6 2

1 5 4 3 6 2

1 5 4 3 2 6

5 1 4 3 2 6

5 4 1 3 2 6

5 4 3 1 2 6

5 4 3 2 1 6

5 4 3 2 6 1

5 4 2 3 6 1

5 4 2 3 1 6

5 4 2 1 3 6

5 4 1 2 3 6

5 1 4 2 3 6

1 5 4 2 3 6

1 5 2 4 3 6

5 1 2 4 3 6

5 2 1 4 3 6

5 2 4 1 3 6
5 2 4 3 1 6
5 2 4 3 6 1
2 5 4 3 6 1
2 5 4 3 1 6
2 5 4 1 3 6
2 5 1 4 3 6
2 1 5 4 3 6
1 2 5 4 3 6

The quarter Hunt must be hunted down under the Fourth, and then the whole Hunt and half Hunt are to hunt up again, as appears by these changes.

1 2 5 3 4 6
2 1 5 3 4 6
2 5 1 3 4 6
2 5 3 1 4 6
2 5 3 4 1 6
2 5 3 4 6 1
5 2 3 4 6 1
5 2 3 4 1 6
5 2 3 1 4 6
5 2 1 3 4 6
5 1 2 3 4 6
1 5 2 3 4 6
1 5 3 2 4 6
5 1 3 2 4 6
5 3 1 2 4 6
5 3 2 1 4 6
5 3 2 4 1 6
5 3 2 4 6 1
5 3 4 2 6 1
5 3 4 2 1 6
5 3 4 1 2 6
5 3 1 4 2 6
5 1 3 4 2 6
1 5 3 4 2 6
1 5 3 4 6 2
5 1 3 4 6 2
5 3 1 4 6 2
5 3 4 1 6 2
5 3 4 6 1 2
5 3 4 6 2 1

Now the quarter hunt is to be hunted down before the Extream Bells, and then the whole Hunt and half Hunt to hunt again before the Extream Change is made.

3 5 4 6 2 1
3 5 4 6 1 2
3 5 4 1 6 2
3 5 1 4 6 2
3 1 5 4 6 2
1 3 5 4 6 2
1 3 5 4 2 6
3 1 5 4 2 6
3 5 1 4 2 6
3 5 4 1 2 6
3 5 4 2 1 6
3 5 4 2 6 1
3 5 2 4 6 1
3 5 2 4 1 6
3 5 2 1 4 6
3 5 1 2 4 6

3 1 5 2 4 6
 1 3 5 2 4 6
 1 3 2 5 4 6
 3 1 2 5 4 6
 3 2 1 5 4 6
 3 2 5 1 4 6
 3 2 5 4 1 6
 3 2 5 4 6 1
 2 3 5 4 6 1
 2 3 5 4 1 6
 2 3 5 1 4 6
 2 3 1 5 4 6
 2 1 3 5 4 6
 1 2 3 5 4 6

The quarter Hunt being before the Extream Bells, the Extream Change is to be made:

Here are just Twelve-score Changes already set down, and the Bells may either be brought round, and so make an end at the Twelve-score, or else proceed forward to the end of the Seven hundred and twenty. If the bells are not brought round here, they cannot come round, until the Seven-hundred and twenty Changes are all made, and then they come round in course. To bring the Bells round at the end of these Twelve-score Changes, the Extream is to be made between the 5 and 4, which were the two Bells that made the last Extream Change, and brings them round in their right places again, as appears by these figures

1 2 3 4 5 6

There are but two Extream Changes in every Twelve-score, wherein 'tis constantly observed, that the last Extream Change is to be made between those two Bells which made the first Extream, otherwise the Bells would not come round at the end of the Twelve-score.

Here I have somewhat deviated from my directions before, in making the Extream Changes; for in the last Change, which is 123456, I made the Extream between the two nearest Extream Bells to the quarter Hunt; but the Twelve-score Changes are an imperfect Peal, being only a third part of the Changes which are to be made on six Bells, and therefore not to be brought round, unless the last Extream Change is made out of course. To have proceeded forward in the 720, the last Extream should have been made between the 4 and 6, which are the two farthest Extream Bells from the quarter Hunt, the Change next before the Extream, is 123546; now the 4 and 6 making an Extream Change, the Bells stand thus, 123564; the Extream being made, the whole *hunt*, half *hunt*, and quarter *hunt* are to be hunted as before, and the Extream Changes to be made between the two farthest Extream Bells from the quarter *hunt*, which course will bring the Bells round in their right places at the end of the 720. In every 720, there are six Extream Changes, there being Six-score Changes between each. The Twelve-score Changes are to be Rang with any whole *hunt*, half *hunt*, and quarter *hunt*, observing to make the last Extream Change between those two Bells which made the first.

The 720 plain Changes are to be rang or set down One thousand four hundred and forty several wayes, by altering the whole *hunt*, half *hunt*, quarter *hunt*, and Extream Bells (but the course of each is the same with that which is before set down) which I thus demonstrate. On 6 Bells, there are 120 several *hunts*, (*viz.*) a whole *hunt*, half *hunt*, and quarter *hunt* Six-score several times, and not one and the same whole *hunt*, half *hunt*, and quarter *hunt* twice, as appears by these Figures.—

123 213 312 412 512 612
 124 214 314 413 513 613
 125 215 315 415 514 614
 126 216 316 416 516 615
 132 231 321 421 521 621
 134 234 324 423 523 623
 135 235 325 425 524 624
 136 236 326 426 526 625
 142 241 341 431 531 631
 143 243 342 432 532 632
 145 245 345 435 534 634
 146 246 346 436 536 635
 152 251 351 451 541 641
 153 253 352 452 542 642
 154 254 354 453 543 643
 156 256 356 456 546 645
 162 261 361 461 561 651
 163 263 362 462 562 652
 164 264 364 463 563 653
 165 265 365 465 564 654

These Figures stand three and three together, each three represents the three Hunts; that is, the first is the whole Hunt, the second Figure the half Hunt, and the third the quarter Hunt; for Example, the first three are 123, the treble is

the whole Hunt, the second the half Hunt, and the third the quarter Hunt: The next three Figures are 124, there the treble is the whole Hunt, the second the half Hunt, and the fourth the quarter Hunt; and the last three Figures are 654, where the sixth is the whole Hunt, the fifth the half Hunt, and the fourth the quarter Hunt, and so of all the rest.

With one whole Hunt, half Hunt, and quarter Hunt, the Seven-hundred and twenty Changes are to be Rang, or set down twelve several wayes; for instance, take the first three Hunts in these Figures, which are 123, where the treble is the whole Hunt, the second the half Hunt, and the third the quarter Hunt, which may be hunted six several wayes, as followeth.

- Treble, second and third, all up.
- Treble and second up, third down.
- Treble up, second and third down.
- Treble, second and third, all down.
- Treble and second down, third up.
- Treble down, second and third up.

Each of these are to be Rang two wayes, one is to make the Extreame between the two farthest Extreame Bells from the quarter Hunt, and the other way is to make the Extreame between the two next Bells to the quarter Hunt.

By treble, second and third all up, is meant, that the treble is the whole *hunt*, and to hunt up the first Change at the beginning of the Peal; the second is the half *hunt*, and to half hunt up; that is, to move up towards the hindmost Bells the first time it moves at the beginning of the Peal; and the third is the quarter *hunt*, and to move likewise toward the hindmost Bells the first time it removes. And by treble and second up, and third down, is meant, that the treble and second are to move up towards the hindmost Bell, the first time each removes at the beginning of the Peal; and the third being the quarter *hunt*, is to move down the first time, which are only directions for moving the *hunts* at first, because they may be hunted either up or down.

Sometimes it happens, that the *hunts* cannot be hunted that way which is proposed, as in the 720, treble, second and third all down.—

1 2 3 4 5 6

The whole *hunt* which is the treble, should now be hunted down; but it being already before the Bells, insomuch that it can be removed no lower; I should therefore remove the half *hunt* down, but that being also down as low as it can go, I should move the quarter *hunt*; and that being also down before the Extreame Bells, I can move it no lower, unless I should move it down under the second, which is the half *hunt*, which must not be done; for when the quarter *hunt* is down next before the *Extreame Bell*, it must be removed no lower; and when it is up next behind *Extreame Bell*, it is to be removed up no higher; therefore it being now before the *Extreame Bell*, the *Extreame Change* is to be made the first of all; and when that is done, the treble, second and third must be hunted up in course. Or if you make treble and second down, and third up, then the first Change is to be made, by moving the quarter *Hunt* up over one *Bell*. And again, if you make Treble and Tenor both up, and Third down, first hunt up the Treble, and then the Tenor, which is the half *Hunt*, should be moved up; but it being already behind, the quarter *Hunt*, which is the Third, must move under one *Bell*, and then the whole *Hunt* and half are to hunt in course after each other: Many Examples of this Nature I could set down, which for brevity sake I omit.

I might demonstrate how the 720 are to be Rang twelve wayes, with each of the Six-score Hunts, as I did that of treble, second and third; but I think that altogether needless, since that Example makes it most plain and easie to be understood: But I will give a general Rule for hunting any whole Hunt, half Hunt, and quarter Hunt, so as to produce six several wayes to Ring the 720 Changes, which is this:

- Whole Hunt, half Hunt, and quarter Hunt, all hunted up.
- Whole Hunt, and half Hunt hunted up, and quarter Hunt down.
- Whole Hunt hunted up, half Hunt and quarter Hunt down.
- Whole Hunt, half Hunt, and quarter Hunt hunted down.
- Whole Hunt and half Hunt hunted down, and quarter Hunt up.
- Whole Hunt hunted down, half Hunt and quarter Hunt hunted up.

Which is a general Rule to Ring the 720 six wayes on any one of the Six-score Hunts; each of which six wayes, may be Rang two wayes more, by altering the *Extreame Changes*, one of which is to make the *Extreame Changes* between the two next *Extreame Bells* to the quarter Hunt, and the other way is to make the *Extreames* between the two farthest *Extreame Bells* from it.

The 720 Changes are to be Rang 12 wayes with one whole Hunt, half Hunt, and quarter Hunt; so that with the Six-score Hunts, it is to be Rang Six-score times twelve wayes, which makes One thousand four hundred and forty several wayes to Ring this 720 plain Changes.

In the 720, the half Hunt, the quarter Hunt, and the three *Extream* Bells, makes the Six-score Changes on 5 Bells in a perfect course, the half Hunt and quarter hunt in the 720, being the whole Hunt and half Hunt in the Six-score; for Example, take the 23456, and set down the Six-score Changes on them, making the second the whole hunt, and the third the half hunt; which when you have set down, then take the Treble, and hunt it through every Change of that Six-score, and it will make 720 Changes, the same with those which I have set down before, The Twenty-four Changes on four Bells, and the six changes on three Bells, have also a perfect course in the 720, in the same manner as I told you they had in the Six-scores on five Bells. There is always one change in the Six-score made every time the whole hunt comes before or behind the bells, which is every sixth change; and there's one change of the Twenty-four made, every time the whole hunt and half hunt comes before or behind the bells, which is once in thirty changes; and one change of the six made every extream, that is once in six-score changes. You may take the six-score changes on five bells, treble the whole, and second the half hunt, before set down; and hunt the sixth bell through every change of that six score, which will make the 720 changes; Tenor the whole hunt, Treble the half hunt, and Second the quarter hunt.

This is not material for a Learner to know, it being only for the instructions of those that know how to Ring it, but yet are ignorant of the true grounds thereof; therefore I have dissected it, and shewed the grounds of each part of it.

In this place, I will add a word or two to those that practise to Ring the Changes.

They that Ring the extream bells in the Twenty-four changes, must mind and observe the motion of the hunt, that they may the better know when to make the extream changes; and likewise in a six-score on five bells, he that Rings the half hunt, must observe the motion of the whole hunt; and they that Ring the extream bells, must observe the motions both of the whole hunt, and half hunt, that they may know when the half hunt is to move, and also when to make the extream changes; or else he that does Ring the half hunt, may give notice of the extream changes (by saying *Extream*) the change next before the extream is to be made. The same is to be observed in the changes on six bells. The whole hunt is the easiest bell to Ring in any changes, the half hunt is more plain and easie to Ring, than an extream bell. All changes are to be Rang either by *walking* them (as the term is) or else Whole-pulls, or Half-pulls. By *walking* them, is meant, that the bells go round, four, six, eight times, or more, in one change, which is commonly used by young Practisers; it may be sometimes on five bells, Ringing the Twenty-four changes on the treble, second, third, and fourth, the fifth bell striking behind every change; and many other changes of the like nature may be practised this way by young Ringers. Whole-pulls, is to Ring two Rounds in one change, that is, Fore-stroke and Back-stroke, and in a change; so that every time you pull down the bells at Sally, you make a new change differing from that at the Back-stroke next before; this Whole-pulls was altogether practised in former time, but of late there is a more quick and ready way practised, called Half-pulls, which is—only one round in a change, that is, one change made at the Fore-stroke, and another at the Back-stroke, which way is now altogether in use (unless it be at some great bells, which are too weighty to be managed up so high a Compass at the Back-stroke, as Half-pulls requires) it being now a common thing in *London* to Ring the 720 *Changes, Trebles and Doubles, and Grandsire Bob, Half-pulls*, (which is commonly Rang with so round and quick a Compass, that in the space of half an hour, or little more, the 720 Changes are Rang out from the beginning to the end.) And also the Six-scores *Doubles and Singles, Old Doubles, Grandsire*, and many other cross Peals on five bells, are commonly Rang Half-pulls.

In Ringing Half-pulls some Peals do cut Compass, that is—the whole *hunt* comes to lead at the Back-stroke, to remedy which, make the first change of the Peal at the Back-stroke.

By these following Rules, you shall know what Peals do cut Compass, and what not (*i.e.*) of plain and single changes. *On six Bells*,

In hunting either the treble, the third, or the fifth bells down, cuts Compass; hunting them up, does not cut Compass.

In hunting the second, fourth, or sixth bells up, cuts Compass; but hunting them down, does not cut Compass.

These Rules (leaving out the Tenor) serves for five bells; and leaving out the fifth and Tenor, they serve for four bells.

The Twelve score Long Hunts: Or the ESQUIRE'S Twelve-score.

This Peal is to be Rang on six bells, having two whole *hunts*, and one half *hunt*; the common way of Ringing, it is to make the fifth and Tenor the whole *hunts*, and the Treble the half *hunt*. The Tenor and fifth does each *hunt* down by turns, and when either of them comes down before the bells, it leads twice, and then *hunts* up again.

The Treble, second, third, and fourth, makes the Twenty-four changes, one of which is made every time either of the whole *hunts* leads: For instance, the Tenor is first to be *hunted* down, thus.—

1 2 3 4 5 6
1 2 3 4 6 5
1 2 3 6 4 5
1 2 6 3 4 5
1 6 2 3 4 5

6 1 2 3 4 5

The tenor being hunted down, and lying before the bells, there is one change in the Twenty-four now to be made between treble and second, thus.—

6 2 1 3 4 5

The tenor is to be hunted up into its place, and the fifth hunts down.—

2 6 1 3 4 5

2 1 6 3 4 5

2 1 3 6 4 5

2 1 3 4 6 5

2 1 3 4 5 6

2 1 3 5 4 6

2 1 5 3 4 6

2 5 1 3 4 6

5 2 1 3 4 6

The fifth being now before the bells, there is another change in the Twenty-four to be made between the treble and third, as in this change.—

5 2 3 1 4 6

The fifth is now to hunt up, and the tenor to hunt down again, in which course they continue to the end of the Peal, observing to make an extream change, when the treble (which is the hunt in the Twenty-four) comes before or behind the extream bells.

2 5 3 1 4 6

2 3 5 1 4 6

2 3 1 5 4 6

2 3 1 4 5 6

2 3 1 4 6 5

2 3 1 6 4 5

This Peal may be Rang by making the Twenty-four changes Doubles and Singles, in the place of the Twenty-four plain Changes, and many other wayes, which I leave to the Learner to practise.

The Variety of Changes on any Number of Bells.

The changes on bells do multiply infinitely. On two bells there are two changes. On three bells are three times as many changes as there are on two; that is—three times two changes, which makes six. On four bells there are four times as many changes as on three; that is—four times six changes, which makes Twenty-four. On five bells there are five times as many changes as there are on four bells; that is—five times Twenty-four changes, which makes Six-score. On six bells are six times as many changes as there are on five; that is—six times Six-score changes, which makes Seven-hundred and twenty: And in the same manner, by increasing the number of bells, they multiply innumerably, as in the Table of Figures next following; where each of the Figures in the Column of the left hand, standing directly under one another (which are 1.2.3.4.5.6.7.8.9.10.11.12.) do represent the number of bells; and the Figures going along towards the right hand, directly from each of those twelve Figures, are the number of changes to be rung on that number of bells which the Figure represents: For Example, the uppermost Figure on the left hand is 2, which stands for two bells; and the Figure next to it on the right hand is also 2, which stands for two changes; that is to say, on two bells there are two changes. The next Figure below in the left Column is 3, which stands for three Bells; and the Figure next to it on the right hand is 6, which stands for six changes; that is—on three bells are six changes, and so of the rest as follows.

bells changes

2	2
3	6
4	24
5	120
6	720
7	5040
8	40320
9	362880
10	3628800
11	39916800
12	479001600

The lowest of these figures are 479001600, that is, Four hundred seventy nine Millions, one thousand six hundred, which are all the changes that can be made on twelve bells: And supposing that twelve men should take 12 bells with

intent to ring the changes on them, they would be Seventy five Years, ten Months, one Week and three Dayes in ringing them, according to the proportion of ringing 720 changes in an hour; reckoning 24 hours to the day, and 365 dayes in the Year.

Having given Directions for all sorts of plain and single Changes, I will now proceed to Cross-peals, and first to Doubles and Singles on four Bells.

Doubles And Singles on four Bells.

On four bells there are 24 changes to be made Doubles and Singles, wherein are twelve double changes, and 12 single; next to every double change, there is a single; so that 2 double changes do not come together in any place throughout the Peal, neither does two single changes at any time come together; but one change is double, and the next is single, to the end of the Peal. Every double change is made between the four bells; that is—there are two changes made at one time, between the bells in treble and seconds places, and the bells in third and fourths places. Every single change is made between the two bells in the middle (*i.e.*) in seconds and thirds places; excepting the extream changes, which are single, and made between the two farthest extream bells from the Hunt. An Example I here set down, making the treble the Hunt, and I hunt it up at the beginning of the Peal (for it may be hunted either up or down at pleasure) and I make an extream change every time the whole Hunt comes before the bells. In ringing it, 'tis observed, that every bell hunts in course, and lies twice before, and twice behind, except only when the extream is to be made, and then the two farthest extream bells from the Hunt, does make a dodge, and then moves in their former course, as in these changes.—

1 2 3 4
2 1 4 3
2 4 1 3
4 2 3 1
4 3 2 1
3 4 1 2
3 1 4 2
1 3 2 4

Now the hunt is before the bells, there is an extream change made between the two farthest bells from it, which are the 2 and 4, thus.—

1 3 4 2

The extream change being made, the bells are to move, as before, observing to make an extream change every time the whole hunt comes before the bells.

3 1 2 4
3 2 1 4
2 3 4 1
2 4 3 1
4 2 1 3
4 1 2 3
1 4 3 2
1 4 2 3
4 1 3 2
4 3 1 2
3 4 2 1
3 2 4 1
2 3 1 4
2 1 3 4
1 2 4 3
1 2 3 4

In this last Twenty-four, the treble is hunted up at the beginning; it may be rang by hunting it down, which is to be down, by making the first a single change, and then hunt it up as before.

With one hunt this Peal may be rang six wayes (*viz.*) three wayes in hunting it up at the beginning of each Peal, and the other three wayes by hunting it down; the three wayes in hunting it up, differs only in making the extream changes; in one of the three wayes you must make an extream change every time the hunt comes before the bells to lead, as in the Twenty-four changes before set down. Another way is to make an extream every time the hunt comes behind. And the third way, is to make an extream every time the hunt comes before and behind the bells. The three wayes in hunting it down, are to be rang by making the extream changes, as in the three wayes before; in hunting one bell, there are six wayes to ring this Peal; therefore with the four bells (in making each of them to hunt) there are four times six wayes to ring it, which makes Twenty-four several wayes. And for the benefit of the Learner, I have set down certain Rules, shewing how to begin any of the aforesaid Peals (*viz.*)

In hunting either the treble or third up, the first change is double; but in hunting either of them down, the first is single.

In hunting the second or the fourth up, the first change is single; but in hunting either of them down, the first change in each Peal must be double.

Doubles and Singles on five Bells.

There is a Peal to be rang on five bells, called Doubles and Singles, wherein are Six-score several changes, sixty of which are double changes, and sixty are single; the double and single changes are so intermixt, that two double changes does not at any time come together in the Six-score; neither are two single changes made next to each other in any part of this Peal, but one change is double, and the next single, in which course they are made to the end. Every double change is made between the four foremost bells (*i.e.*) in treble, second, third, and fourth places. When the whole hunt is hunting up, each single change is made between the whole hunt, and the next bell above it. In hunting down the single changes are made between the whole hunt, and the next bell below it, the whole hunt being always one of the two bells which makes every single change, except only when it leads, and then the single change is made in third and fourths places; but the extream is also a single change, and made (when the whole hunt leads) between the two farthest extream bells from the half hunt; the half hunt is to lie either before or behind the extream bells, when the extream changes are made, of which I shall shew you more anon.

In this Peal there is a whole hunt, a half hunt, and three extream Bells; the whole hunt in a direct course does hunt up and down, and lies twice before, and twice behind all the way; every other bell leads twice together throughout the Peal.

And when the whole hunt leaves the thirds place, hunting up, then every bell that comes into second and thirds places, does lie in each of those places twice together, until the whole hunt comes down again into thirds place, at which time the bell in fourths place lies there twice, and then makes a dodge with the bell in thirds place (unless an extream change is to be made) and so removes directly down before the bells. And that bell which comes into the tenors place (when the whole hunt leaves that place hunting down) lies still there, until the whole hunt removes up into that place again, except only when the extream is made behind, and then the bell in fourths place moves into tenors place, and lies there until the whole hunt moves up into that place.

With one whole hunt, and half hunt, this Peal may be rang six wayes, in three of which the whole hunt is to be hunted up at the beginning of each Peal, which three wayes differs only in making the extream changes. One way, is to make an extream change every time the half hunt comes before the extream bells, as in the following Six-score. The second way, is to make an extream change every time the half hunt comes behind the extream bells. And the third way, is to make an extream every time, the half hunt comes before and behind the extream bells. In this last way there are six extreams in each Peal, but in the other two ways there are but three extreams in each Peal.

The three wayes aforesaid, are to be rang, by hunting up the whole hunt; but it may be rang three wayes more, in hunting down the same whole hunt, in which three ways the extreams are to be made, as I shewed you before. The whole hunt is always to lead when every extream change is made.

This Peal I have set down at large, making the treble the whole hunt, the second the half hunt; and an extream change every time the half hunt comes before the extream bells, as in the following changes. I have drawn a Line between the figures at the extream changes, that next below the Line is the extream.

1 2 3 4 5
2 1 4 3 5
2 4 1 3 5
4 2 3 1 5
4 2 3 5 1
2 4 5 3 1
2 4 5 1 3
4 2 1 5 3
4 1 2 5 3
1 4 5 2 3
1 4 2 5 3
4 1 5 2 3
4 5 1 2 3
5 4 2 1 3
5 4 2 3 1
4 5 3 2 1
4 5 3 1 2
5 4 1 3 2
5 1 4 3 2
1 5 3 4 2
1 5 4 3 2
5 1 3 4 2
5 3 1 4 2
3 5 4 1 2
3 5 4 2 1

53241
53214
35124
31524
13254
13524
31254
32154
23514
23541
32451
32415
23145
21345
12435

12453
21543
25143
52413
52431
25341
25314
52134
51234
15324
15234
51324
53124
35214
35241
53421
53412
35142
31542
13452
13542
31452
34152
43512
43521
34251
34215
43125
41325
14235
14325
41235
42135
24315
24351
42531
42513
24153
21453
12543

12534
21354
23154
32514
32541

2 3 4 5 1
 2 3 4 1 5
 3 2 1 4 5
 3 1 2 4 5
 1 3 4 2 5
 1 3 2 4 5
 3 1 4 2 5
 3 4 1 2 5
 4 3 2 1 5
 4 3 2 5 1
 3 4 5 2 1
 3 4 5 1 2
 4 3 1 5 2
 4 1 3 5 2
 1 4 5 3 2
 1 4 3 5 2
 4 1 5 3 2
 4 5 1 3 2
 5 4 3 1 2
 5 4 3 2 1
 4 5 2 3 1
 4 5 2 1 3
 5 4 1 2 3
 5 1 4 2 3
 1 5 2 4 3
 1 5 4 2 3
 5 1 2 4 3
 5 2 1 4 3
 2 5 4 1 3
 2 5 4 3 1
 5 2 3 4 1
 5 2 3 1 4
 2 5 1 3 4
 2 1 5 3 4
 1 2 3 5 4

1 2 3 4 5

This Peal may be rang Six-score several wayes; there being twenty hunts on five bells (that is—a whole hunt, and half hunt twenty times on five bells, and not one and the same whole hunt and half hunt twice, as I shewed more at large in the plain changes on five bells before set down) and with each hunt, that is, with one whole hunt and half hunt, it may be rang six wayes; so that multiply twenty, (which are the number of hunts) by six, (which are the number of Peals to be rang on each hunt) and it will produce Six-score several wayes to ring it.

It may be prick't, or rang Six-score several wayes more, by making the extream changes when the whole hunt lies behind the bells, but those wayes are never practised; neither do I think it material to say any thing more of them in this place, having only inserted this, to shew the great variety there is in this Peal. It being somewhat difficult to know the true way of beginning each Peal, I have therefore set down certain Rules, shewing how the first changes in each are to be made.

In hunting the treble, the third, or the fifth bells up, the first change in each Peal is to be made double.

In hunting the treble down, the first change is single in third and fourths places, unless the half hunt lies so, as that the extream is to be made.

In hunting the third or fifth down, the first change is to be made single, between the whole hunt, and the next bell below it.

In hunting up the second or fourth, the first change in each Peal is single, between the whole hunt, and the next bell above it.

In hunting down the second or fourth, the first change is to be made double.

Every double change in all the Peals of Doubles and Singles, is made between the four foremost bells; that is—in treble, second, third and fourths places.

Tendring's Six-score on five Bells.

In this Peal are contained Six-score changes, which are Doubles and Singles, there being sixty double changes in it, and sixty single, which are so intermixt, that two double changes does not come together in any part of the Peal; neither are there 2 single changes at any time made together, but one change is double, and the next to it is single; in which course the changes are all made to the end of the Peal. Every single change is made between the 2 hindmost bells. There is a whole hunt and half hunt in it. The observation in ringing it, is this: When the whole hunt lies before the bells, and is to hunt up, first it moves up into seconds place, where it lies twice; then into thirds place, where it lies also twice; then into the fourths place, where it lies once; and in the tenors place once: Then it makes a dodge with the bell in fourths place, after which it lies twice behind; then it moves down into fourths place, and makes a dodge with the bell in tenors place, and then moves down into thirds place, where it lies twice, and in the seconds place twice, and then it leads four times; after which, it hunts again, as before. The course of the other four bells are exactly the same with that of the whole hunt, in moving up and down, except only when the Bob changes are made, and then they differ; but after the Bobs are made, their course is the same as before; every bell lies four times together before the bells, and twice in the seconds place without any alteration. In this Peal are two sorts of Bobs; one of which is called a double Bob, and the other a single Bob. The Rule for making the double Bob is this, when the whole hunt is hunting down, and lies in the seconds place, and the half hunt lies behind, then there's a double Bob; that is, two Bob-changes; one of which is made the next change, wherein the whole hunt moves down to lead; where having led four times, there is then another Bob-change to be made, in which the whole hunt moves up into the seconds place. The Rule for making the single Bob, is this, when the whole hunt has led four times, and the half hunt lies in thirds place; then the next change following is a single Bob, that is—one Bob-change, in which the whole hunt moves out of the trebles place up into the seconds place, every Bob is a double change, and made between the two first, and two last bells, the bell in thirds place lying still when each Bob is made, where it lies four times together, and then moves down; every time the whole hunt comes before the bells, there is either a single Bob, or a double Bob made. At every double Bob, those two bells that do dodge behind at the first Bob-change, continues dodging until the whole hunt moves up, and parts them: And likewise at the single Bob, those 2 bells which do dodge behind at the Bob-change, continue dodging until the whole hunt moves up, and parts them, as in the following changes, where the treble is the whole hunt, the tenor the half hunt, and the first is a Bob-change, being supposed to be the second Bob-change of a double Bob.

- 1 2 3 4 5
- 2 1 3 5 4
- 2 1 3 4 5
- 2 3 1 5 4
- 2 3 1 4 5
- 3 2 4 1 5
- 3 2 4 5 1
- 3 4 2 1 5
- 3 4 2 5 1
- 4 3 5 2 1
- 4 3 5 1 2
- 4 5 3 2 1
- 4 5 3 1 2
- 5 4 1 3 2
- 5 4 1 2 3
- 5 1 4 3 2
- 5 1 4 2 3
- 1 5 2 4 3
- 1 5 2 3 4
- 1 2 5 4 3
- 1 2 5 3 4
- 2 1 5 4 3
- 2 1 5 3 4
- 2 5 1 4 3
- 2 5 1 3 4
- 5 2 3 1 4
- 5 2 3 4 1
- 5 3 2 1 4
- 5 3 2 4 1
- 3 5 4 2 1
- 3 5 4 1 2
- 3 4 5 2 1
- 3 4 5 1 2
- 4 3 1 5 2
- 4 3 1 2 5
- 4 1 3 5 2
- 4 1 3 2 5
- 1 4 3 5 2
- 1 4 3 2 5

13452
13425
31452
31425
34152
34125
43215
43251
42315
42351
24531
24513
25431
25413
52143
52134
51243
51234
15324
15342
13524
13542
31524
31542
35124
35142
53412
53421
54312
54321
45231
45213
42531
42513
24153
24135
21453
21435
12453
12435
14253
14235
41253
41235
42153
42135
24315
24351
23415
23451
32541
32514
35241
35214
53124
53142
51324
51342
15432
15423
14532
14523

4 1 5 3 2

4 1 5 2 3

4 5 1 3 2

4 5 1 2 3

5 4 2 1 3

5 4 2 3 1

5 2 4 1 3

5 2 4 3 1

2 5 3 4 1

2 5 3 1 4

2 3 5 4 1

2 3 5 1 4

3 2 1 5 4

3 2 1 4 5

3 1 2 5 4

3 1 2 4 5

1 3 2 5 4

1 3 2 4 5

1 2 3 5 4

1 2 3 4 5

This Peal was made out of *Grandsire* on five bells, the Bob-changes in this, being the same with those in *Grandsire*, and made by the same Rule.

Paradox on five Bells.

This Peal of *Paradox* is to be rang on five bells, wherein are Six-score changes, they are Doubles and Singles; that is— one change double, and another single; in which course they are made to the end of the Peal. Every single change is made in second and thirds places, except only when the whole Hunt leads, and then 'tis made in third and fourths places; but the extream Changes are (also single) and made between the two farthest extream bells from the half Hunt; the whole Hunt lies before the bells, when every extream change is made. Every bell lies four times together before, and four times behind, except only when the extream changes are made behind. There is a whole Hunt, a half Hunt, and three extream bells; the course of the whole Hunt is this, it being before the bells, first it moves up into the second and thirds places, then it makes a dodge with the bell in seconds place, and moves out of the thirds place up into fourths, where it lies alwayes twice, then moves up behind, where it lies four times, and then moves down into fourths place, where having lay twice, it hunts down into seconds place, and makes a dodge with the bell in thirds place, and then moves down before the bells, where having lay twice, it hunts as before; each of the other bells has the same course (in hunting up and down) as the whole Hunt until the whole Hunt leads, at which time every bell that comes into seconds place lies there twice together, unless the extream change is to be made in second and thirds places.

In this following Peal the treble is the whole Hunt, and the second the half Hunt; the extream changes are made, when the half Hunt lies before the extream bells.

1 2 4 3 5

2 1 4 3 5

2 4 1 3 5

2 1 4 5 3

2 4 1 5 3

4 2 5 1 3

4 5 2 1 3

4 2 5 3 1

4 5 2 3 1

5 4 3 2 1

5 3 4 2 1

5 4 3 1 2

5 3 4 1 2

3 5 1 4 2

3 1 5 4 2

3 5 1 2 4

3 1 5 2 4

1 3 2 5 4

1 3 5 2 4

1 5 3 4 2

1 5 4 3 2

5 1 3 4 2

53142
51324
53124
35214
32514
35241
32541
23451
24351
23415
24315
42135
41235
42153
41253
14523
14253
12435

12453
21543
25143
21534
25134
52314
53214
52341
53241
35421
34521
35412
34512
43152
41352
43125
41325
14235
14325
13452
13542
31452
34152
31425
34125
43215
42315
43251
42351
24531
25431
24513
25413
52143
51243
52134
51234
15324
15234
12543

12534
21354

2 3 1 5 4
 2 1 3 4 5
 2 3 1 4 5
 3 2 4 1 5
 3 4 2 1 5
 3 2 4 5 1
 3 4 2 5 1
 4 3 5 2 1
 4 5 3 2 1
 4 3 5 1 2
 4 5 3 1 2
 5 4 1 3 2
 5 1 4 3 2
 5 4 1 2 3
 5 1 4 2 3
 1 5 2 4 3
 1 5 4 2 3
 1 4 5 3 2
 1 4 3 5 2
 4 1 5 3 2
 4 5 1 3 2
 4 1 5 2 3
 4 5 1 2 3
 5 4 2 1 3
 5 2 4 1 3
 5 4 2 3 1
 5 2 4 3 1
 2 5 3 4 1
 2 3 5 4 1
 2 5 3 1 4
 2 3 5 1 4
 3 2 1 5 4
 3 1 2 5 4
 3 2 1 4 5
 3 1 2 4 5
 1 3 4 2 5
 1 3 2 4 5
 1 2 3 5 4

1 2 3 4 5

I have drawn a Line between the Figures at the extream changes, that next below each Line is the extream; the first extream is Forty changes from the beginning.

This Peal is grounded on the Twenty-four changes Doubles and Singles on four bells. The half Hunt, and three extream bells in this Peal, makes the Twenty four changes in a perfect course. There are four changes made in the Twenty-four every time the whole Hunt leads, which coming before the bells six times in the Six-score, and each time lying there four times together, makes six times four changes, which is Twenty four. 'Tis easily made out, if you take every change that is made when the whole Hunt is before the bells in the Six-score before, and set the changes down by themselves (leaving out the treble) where you will find, that the second, third, fourth and fifth, make the Twenty-four changes Doubles and Singles, in a perfect course; second is the Hunt, and the extreams are made when the Hunt is before.

Paradox may be rang Six-score several wayes. With one whole Hunt, and half Hunt, it may be rang six wayes, in three of which the whole Hunt is to be hunted up; and in the other three wayes it is to be hunted down, in which six wayes the extream changes are to be made by the same Rules, and in the same manner, as I shewed before in the Six-score Doubles and Singles on five bells; so that with the twenty Hunts, it may be prick't or rang twenty times six wayes, which makes Six-score.

This Peal may be prick't Six-score wayes more, by making the extreams when the whole Hunt lies behind the bells, but that being never practised, I will say no more of it. I have here set down some general Rules for beginning the several Peals of *Paradox* by the former course (*i.e.*) in making the extreams when the whole Hunt is before the bells.

In hunting the treble up, the first change is double between the four first bells, thus.—

1 2 3 4 5
 2 1 4 3 5

In hunting the treble down, the first change is single in third and fourths places

(thus.— 1 2 3 4 5
1 2 4 3 5)

unless the half Hunt lies so, that the extrems may be made.

Second up, the first change is single in second and thirds places, thus.—

1 2 3 4 5
1 3 2 4 5

Second down, the first change is double between the four first bells.

Third up, the first change is double between the four first bells.

Third down, the first change is single in second and thirds places.

Fourth up, the first change is double between the four hindmost bells, thus.—

1 2 3 4 5
1 3 2 5 4

Fourth down, the first change is double between the four first bells.

Fifth up, the first change is single in second and thirds places.

Fifth down, the first change is double between the four hindmost bells.

If you observe these Rules aright, together with my former directions, you may with much ease prick down any Peal of *Paradox*.

PHOENIX. On five Bells.

This Peal has Six score changes in it, which are Doubles and Singles; the tenor is the whole Hunt, and the fourth the half Hunt. Every bell lies twice before, and four times behind; every single change is made in second and thirds places, and every bell that comes into fourths place, lies there twice together, until the tenor comes behind; at which time, the fourth lying in the seconds place, the next single change is made in third and fourths places; but the tenor lying behind, and the fourth in thirds place, then the two next following single changes are in third and fourths places.

1 2 3 4 5
2 1 3 5 4
2 3 1 5 4
3 2 5 1 4
3 5 2 1 4
5 3 2 4 1
5 2 3 4 1
2 5 4 3 1
2 4 5 3 1
4 2 5 1 3
4 5 2 1 3
5 4 1 2 3
5 1 4 2 3
1 5 4 3 2
1 4 5 3 2
4 1 3 5 2
4 3 1 5 2
3 4 1 2 5
3 4 2 1 5
4 3 1 2 5
4 1 3 2 5
1 4 3 5 2
1 3 4 5 2
3 1 5 4 2
3 5 1 4 2
5 3 1 2 4
5 1 3 2 4
1 5 2 3 4
1 2 5 3 4

21543
25143
52413
54213
45231
42531
24351
23451
32415
32145
23415
23145
32154
31254
13524
15324
51342
53142
35412
34512
43521
45321
54231
52431
25413
24513
42153
41253
14235
14325
41235
42135
24153
21453
12543
15243
51234
52134
25314
23514
32541
35241
53421
54321
45312
43512
34152
31452
13425
13245
31425
31245
13254
12354
21534
25134
52143
51243
15423
14523
41532
45132

5 4 3 1 2
5 3 4 1 2
3 5 4 2 1
3 4 5 2 1
4 3 2 5 1
4 2 3 5 1
2 4 3 1 5
2 4 1 3 5
4 2 3 1 5
4 3 2 1 5
3 4 2 5 1
3 2 4 5 1
2 3 5 4 1
2 5 3 4 1
5 2 3 1 4
5 3 2 1 4
3 5 1 2 4
3 1 5 2 4
1 3 5 4 2
1 5 3 4 2
5 1 4 3 2
5 4 1 3 2
4 5 1 2 3
4 1 5 2 3
1 4 2 5 3
1 2 4 5 3
2 1 4 3 5
2 1 3 4 5
1 2 4 3 5
1 2 3 4 5

London Pleasure on five Bells.

In this Peal called *London Pleasure*, are Six-score changes, which are all single. It being a confused Peal to ring, I shall say nothing more of it, but expose it to view, as in the following changes.

1 2 3 4 5
2 1 3 4 5
2 1 3 5 4
1 2 3 5 4
1 2 5 3 4
2 1 5 3 4
2 5 1 3 4
2 5 3 1 4
2 3 5 1 4
2 3 1 5 4
2 3 1 4 5
2 3 4 1 5
2 3 4 5 1
2 3 5 4 1
2 5 3 4 1
5 2 3 4 1
5 2 3 1 4
5 2 1 3 4
5 1 2 3 4
1 5 2 3 4
1 5 2 4 3
5 1 2 4 3
5 2 1 4 3
2 5 1 4 3
2 1 5 4 3
1 2 5 4 3

1 2 4 5 3
2 1 4 5 3
2 4 1 5 3
2 4 5 1 3
2 5 4 1 3
5 2 4 1 3
5 2 4 3 1
2 5 4 3 1
2 4 5 3 1
2 4 3 5 1
2 4 3 1 5
2 4 1 3 5
2 1 4 3 5
1 2 4 3 5
1 4 2 3 5
4 1 2 3 5
4 1 2 5 3
1 4 2 5 3
1 4 5 2 3
4 1 5 2 3
4 5 1 2 3
4 5 2 1 3
4 2 5 1 3
4 2 1 5 3
4 2 1 3 5
4 2 3 1 5
4 2 3 5 1
4 2 5 3 1
4 5 2 3 1
5 4 2 3 1
5 4 2 1 3
5 4 1 2 3
5 1 4 2 3
1 5 4 2 3

1 5 4 3 2

5 1 4 3 2
5 4 1 3 2
4 5 1 3 2
4 1 5 3 2
1 4 5 3 2
1 4 3 5 2
4 1 3 5 2
4 3 1 5 2
4 3 5 1 2
4 5 3 1 2
5 4 3 1 2
5 4 3 2 1
4 5 3 2 1
4 3 5 2 1
4 3 2 5 1
4 3 2 1 5
4 3 1 2 5
4 1 3 2 5
1 4 3 2 5
1 3 4 2 5
3 1 4 2 5
3 1 4 5 2
1 3 4 5 2
1 3 5 4 2
3 1 5 4 2

3 5 1 4 2
 3 5 4 1 2
 3 4 5 1 2
 3 4 1 5 2
 3 4 1 2 5
 3 4 2 1 5
 3 4 2 5 1
 3 4 5 2 1
 3 5 4 2 1
 5 3 4 2 1
 5 3 4 1 2
 5 3 1 4 2
 5 1 3 4 2
 1 5 3 4 2
 1 5 3 2 4
 5 1 3 2 4
 5 3 1 2 4
 3 5 1 2 4
 3 1 5 2 4
 1 3 5 2 4
 1 3 2 5 4
 3 1 2 5 4
 3 2 1 5 4
 3 2 5 1 4
 3 5 2 1 4
 5 3 2 1 4
 5 3 2 4 1
 3 5 2 4 1
 3 2 5 4 1
 3 2 4 5 1
 3 2 4 1 5
 3 2 1 4 5
 3 1 2 4 5
 1 3 2 4 5

 1 2 3 4 5

What you please. Doubles and Singles on 5 Bells.

Every bell leads four times, and lies behind twice, except when the extream is made behind, and twice in the seconds place, except when the extream is before; and note, when the treble is before the fourth stroke, the single is in second and third, the next time the single is behind; but at other times, the single is in third and fourths places. When any bell leaves leading, the double change is on the two first, and two last, and the extreams are made by turns, first behind, then before, and so on to the end, for there are six extreams.

1 2 3 4 5
 2 1 3 5 4
 2 1 5 3 4
 2 5 1 4 3
 2 5 4 1 3
 5 2 4 3 1
 5 2 3 4 1
 5 3 2 1 4
 5 3 1 2 4
 3 5 1 4 2
 3 5 4 1 2
 3 4 5 2 1
 3 4 2 5 1
 4 3 2 1 5
 4 3 1 2 5
 4 1 3 5 2
 4 1 5 3 2

1 4 5 2 3
1 4 2 5 3
1 2 4 3 5

1 2 4 5 3
2 1 4 3 5
2 1 3 4 5
2 3 1 5 4
2 3 5 1 4
3 2 5 4 1
3 2 4 5 1
3 4 2 1 5
3 4 1 2 5
4 3 1 5 2
4 3 5 1 2
4 5 3 2 1
4 5 2 3 1
5 4 2 1 3
5 4 1 2 3
5 1 4 3 2
5 1 3 4 2
1 5 3 2 4
1 5 2 3 4
1 2 5 4 3

1 5 2 4 3
5 1 2 3 4
5 1 3 2 4
5 3 1 4 2
5 3 4 1 2
3 5 4 2 1
3 5 2 4 1
3 2 5 1 4
3 2 1 5 4
2 3 1 4 5
2 3 4 1 5
2 4 3 5 1
2 4 5 3 1
4 2 5 1 3
4 2 1 5 3
4 1 2 3 5
4 1 3 2 5
1 4 3 5 2
1 4 5 3 2
1 5 4 2 3

1 5 4 3 2
5 1 4 2 3
5 1 2 4 3
5 2 1 3 4
5 2 3 1 4
2 5 3 4 1
2 5 4 3 1
2 4 5 1 3
2 4 1 5 3
4 2 1 3 5
4 2 3 1 5
4 3 2 5 1
4 3 5 2 1
3 4 5 1 2
3 4 1 5 2
3 1 4 2 5

3 1 2 4 5

1 3 2 5 4

1 3 5 2 4

1 5 3 4 2

1 3 5 4 2

3 1 5 2 4

3 1 2 5 4

3 2 1 4 5

3 2 4 1 5

2 3 4 5 1

2 3 5 4 1

2 5 3 1 4

2 5 1 3 4

5 2 1 4 3

5 2 4 1 3

5 4 2 3 1

5 4 3 2 1

4 5 3 1 2

4 5 1 3 2

4 1 5 2 3

4 1 2 5 3

1 4 2 3 5

1 4 3 2 5

1 3 4 5 2

1 3 4 2 5

3 1 4 5 2

3 1 5 4 2

3 5 1 2 4

3 5 2 1 4

5 3 2 4 1

5 3 4 2 1

5 4 3 1 2

5 4 1 3 2

4 5 1 2 3

4 5 2 1 3

4 2 5 3 1

4 2 3 5 1

2 4 3 1 5

2 4 1 3 5

2 1 4 5 3

2 1 5 4 3

1 2 5 3 4

1 2 3 5 4

1 3 2 4 5

1 2 3 4 5

Reading Doubles. On five Bells.

In this Peal are Six-score changes, the treble is a Hunt; and note when treble is in thirds place hunting up, the two foremost bells dodge until it comes into the same place hunting downwards; and alwayes when the treble is going to lead, the four first bells makes the double change, if the third be behind; but if it be before, the double is on the two first and two last; every bell lieth twice behind, except when the treble goes to lead, if the third be before; and note, when it is 1, 3, 2, there is a single in second and thirds places, which is twice, once at the Three-score end, and Six-score end.

1 2 3 4 5

2 1 4 3 5

2 4 1 5 3

4 2 5 1 3

24531
42351
24315
42135
41253
14523
15432
51342
53124
35214
53241
35421
53412
35142
31524
13542
15324
51234
52143
25413
52431
25341
52314
25134
21543
12453
14235
41325
43152
34512
43521
34251
43215
34125
31452
13425
14352
41532
45123
54213
45231
54321
45312
54132
51423
15243
12534
21354
23145
32415
23451
32541
23514
32154
31245
13254
12354
21534
25143
52413
25431
52341

2 5 3 1 4
5 2 1 3 4
5 1 2 4 3
1 5 4 2 3
1 4 5 3 2
4 1 3 5 2
4 3 1 2 5
3 4 2 1 5
4 3 2 5 1
3 4 5 2 1
4 3 5 1 2
3 4 1 5 2
3 1 4 2 5
1 3 4 5 2
1 4 3 2 5
4 1 2 3 5
4 2 1 5 3
2 4 5 1 3
4 2 5 3 1
2 4 3 5 1
4 2 3 1 5
2 4 1 3 5
2 1 4 5 3
1 2 5 4 3
1 5 2 3 4
5 1 3 2 4
5 3 1 4 2
3 5 4 1 2
5 3 4 2 1
3 5 2 4 1
5 3 2 1 4
3 5 1 2 4
3 1 5 4 2
1 3 5 2 4
1 5 3 4 2
5 1 4 3 2
5 4 1 2 3
4 5 2 1 3
5 4 2 3 1
4 5 3 2 1
5 4 3 1 2
4 5 1 3 2
4 1 5 2 3
1 4 2 5 3
1 2 4 3 5
2 1 3 4 5
2 3 1 5 4
3 2 5 1 4
2 3 5 4 1
3 2 4 5 1
2 3 4 1 5
3 2 1 4 5
3 1 2 5 4
1 3 2 4 5
1 2 3 4 5

Old Doubles. On five Bells.

This Peal call'd *Old Doubles*, is to be rang on five bells, wherein are Six-score changes, which are all Doubles, except only when the whole Hunt leads, and then there is always a single change made. It has a whole Hunt, a half Hunt, and three extream bells; every bell leads twice together all the way, and lies twice behind, except only when the whole Hunt

leads, and then the bell behind lies there four times together, unless the extream is made behind, and then but twice. Every bell hunts in a perfect course, until the whole Hunt leads, and then the single is to be made, at which time the bell in seconds place lies there twice (unless the extream is made in second and thirds place) and every single change is made in third and fourths places, except the extreams which are (in this Peal) made by the same rule and after the same manner, as I shewed before in the Six-score call'd Doubles and Singles on five bells. In making the single changes in third and fourths places, it is observed, that the bell which lies in fourths place (the change next before the single) is hunting up; and in making the single change, it does dodge with the bell in thirds place, and so hunts up behind; and likewise the bell that lies in thirds place (in the change next before the single) is hunting down, and in making the single it does dodge with the bell in fourths place, and then hunts directly down.

In this following Peal, the treble is the whole Hunt, the second the half Hunt, and an extream change is alwayes made, when the half Hunt lies before the extream bells next to the whole Hunt; every extream is made between the two farthest extream bells from the half Hunt, as in the following changes.

- 1 2 3 4 5
- 2 1 4 3 5
- 2 4 1 5 3
- 4 2 5 1 3
- 4 5 2 3 1
- 5 4 3 2 1
- 5 3 4 1 2
- 3 5 1 4 2
- 3 1 5 2 4
- 1 3 2 5 4
- 1 3 5 2 4
- 3 1 2 5 4
- 3 2 1 4 5
- 2 3 4 1 5
- 2 4 3 5 1
- 4 2 5 3 1
- 4 5 2 1 3
- 5 4 1 2 3
- 5 1 4 3 2
- 1 5 3 4 2
- 1 5 4 3 2
- 5 1 3 4 2
- 5 3 1 2 4
- 3 5 2 1 4
- 3 2 5 4 1
- 2 3 4 5 1
- 2 4 3 1 5
- 4 2 1 3 5
- 4 1 2 5 3
- 1 4 5 2 3
- 1 4 2 5 3
- 4 1 5 2 3
- 4 5 1 3 2
- 5 4 3 1 2
- 5 3 4 2 1
- 3 5 2 4 1
- 3 2 5 1 4
- 2 3 1 5 4
- 2 1 3 4 5
- 1 2 4 3 5
- 1 2 4 5 3
- 2 1 5 4 3
- 2 5 1 3 4
- 5 2 3 1 4
- 5 3 2 4 1
- 3 5 4 2 1
- 3 4 5 1 2
- 4 3 1 5 2
- 4 1 3 2 5
- 1 4 2 3 5

14325
41235
42153
24513
25431
52341
53214
35124
31542
13452
13542
31452
34125
43215
42351
24531
25413
52143
51234
15324
15234
51324
53142
35412
34521
43251
42315
24135
21453
12543
12534
21354
23145
32415
34251
43521
45312
54132
51423
15243
15423
51243
52134
25314
23541
32451
34215
43125
41352
14532
14352
41532
45123
54213
52431
25341
23514
32154
31245
13425
13245
31425

3 4 1 5 2
 4 3 5 1 2
 4 5 3 2 1
 5 4 2 3 1
 5 2 4 1 3
 2 5 1 4 3
 2 1 5 3 4
 1 2 3 5 4
 1 2 3 4 5

This Peal of *Old Doubles*, is grounded on the Twenty-four changes Doubles and Singles on four bells, which are made in a perfect course herein; every time the whole Hunt leads, there are two changes made in the Twenty-four; the half Hunt, and three extream bells, makes the Twenty-four changes, and every single change in this Peal, is a single change in the Twenty-four.

This Peal may be rang Six-score several wayes; with one whole Hunt, and half Hunt, it is to be rang six wayes (*i.e.*) three wayes in hunting up the whole Hunt at the beginning of the Peal, and the other wayes in hunting it down; in which six wayes, the Extream Changes are to be made by the same rule, and in the same manner, as those in the Six-score Doubles and Singles on five Bells, and *Paradox* before set down; so that with the twenty Hunts, it may be rang twenty times six wayes, which makes Six-score.

In these Six-score wayes, the whole Hunt is before the Bells when every single Change is made; but it may be rang Six-score several wayes more, by making the single Changes when the whole Hunt lies behind them, which being never practised, I will say no more of it.

For the convenience and benefit of the Practitioner, I have set down certain rules, shewing how to begin each Peal of *Old Doubles* (with any Hunt) by the former course (*i.e.*) in making the single Changes, when the whole Hunt lies before the Bells, these Rules serving only for moving the whole Hunt at the beginning of each Peal, for it may be hunted either up or down.

In hunting either the treble, third, or fifth Bells up, the first change is made between the four foremost Bells, thus.—

1 2 3 4 5
 2 1 4 3 5

—The treble down, the first change is single in third and fourths places, unless the half Hunt lies so, as that the Extream is to be made.

—The third or fifth down, the first change is between the four hindmost Bells, thus.—

1 2 3 4 5
 1 3 2 5 4

—The second or fourth up, the first change is between the four hindmost Bells.

—The second or fourth down, the first change between the four foremost Bells.

In ringing any of these Peals, where the first change is made between the four hindmost Bells, it must be made at the Back-stroke, otherwise the Bells will cut Compass all the way; every double change is made either between the four foremost, or four hindmost bells.

New Doubles. On five Bells.

In this Peal of *New Doubles*, there are Six-score Changes, which are all double, except only when the whole Hunt leads, and then there is alwayes a single Change made; it has a whole Hunt, a half Hunt, and three Extream Bells. The whole Hunt has a perfect course in hunting up and down, and lies twice before, and twice behind. When the whole Hunt leaves the thirds place hunting up, then each Bell that comes into that place, lies there twice, and then moves up behind; and the Bells in treble and seconds places, does continue dodging from the time that the whole Hunt hunts up out of thirds place, until it comes into that place again hunting down; and that Bell which comes into thirds place (when the whole Hunt leaves it hunting down, lies there twice, and then moves up behind) and the next Bell that comes into that place, lies there twice also, and then moves down before the Bells. But note, that Bell which lies in the thirds place (in the Change next before the Extream) continues there, until the whole Hunt hunts up into that place, and then it moves down; when the whole Hunt leads the Bell in seconds place, lies there twice together, and then moves down before the Bells; and every Bell that comes behind, lies there twice, except only in the Change next before, and that next after the whole Hunt leads; every single Change is made in third and fourths places, except the Extreames, which are also single Changes, and made between the two hindmost Bells, when the half Hunt lies before the Extream Bells next to the whole Hunt.

These directions are only for Ringing this Peal next following; but it may be Rang many other wayes, by making the Extream Changes in other places, of which I shall speak more anon.

1 2 3 4 5

2 1 3 5 4
2 3 1 4 5
3 2 4 1 5
2 3 4 5 1
3 2 5 4 1
2 3 5 1 4
3 2 1 5 4
3 1 2 4 5
1 3 2 5 4
1 3 5 2 4
3 1 5 4 2
3 5 1 2 4
5 3 2 1 4
3 5 2 4 1
5 3 4 2 1
3 5 4 1 2
5 3 1 4 2
5 1 3 2 4
1 5 3 4 2
1 5 4 3 2
5 1 4 2 3
5 4 1 3 2
4 5 3 1 2
5 4 3 2 1
4 5 2 3 1
5 4 2 1 3
4 5 1 2 3
4 1 5 3 2
1 4 5 2 3
1 4 2 5 3
4 1 2 3 5
4 2 1 5 3
2 4 5 1 3
4 2 5 3 1
2 4 3 5 1
4 2 3 1 5
2 4 1 3 5
2 1 4 5 3
1 2 4 3 5

1 2 4 5 3
2 1 4 3 5
2 4 1 5 3
4 2 5 1 3
2 4 5 3 1
4 2 3 5 1
2 4 3 1 5
4 2 1 3 5
4 1 2 5 3
1 4 2 3 5
1 4 3 2 5
4 1 3 5 2
4 3 1 2 5
3 4 2 1 5
4 3 2 5 1
3 4 5 2 1
4 3 5 1 2
3 4 1 5 2
3 1 4 2 5
1 3 4 5 2
1 3 5 4 2
3 1 5 2 4

3 5 1 4 2

5 3 4 1 2

3 5 4 2 1

5 3 2 4 1

3 5 2 1 4

5 3 1 2 4

5 1 3 4 2

1 5 3 2 4

1 5 2 3 4

5 1 2 4 3

5 2 1 3 4

2 5 3 1 4

5 2 3 4 1

2 5 4 3 1

5 2 4 1 3

2 5 1 4 3

2 1 5 3 4

1 2 5 4 3

1 2 5 3 4

2 1 5 4 3

2 5 1 3 4

5 2 3 1 4

2 5 3 4 1

5 2 4 3 1

2 5 4 1 3

5 2 1 4 3

5 1 2 3 4

1 5 2 4 3

1 5 4 2 3

5 1 4 3 2

5 4 1 2 3

4 5 2 1 3

5 4 2 3 1

4 5 3 2 1

5 4 3 1 2

4 5 1 3 2

4 1 5 2 3

1 4 5 3 2

1 4 3 5 2

4 1 3 2 5

4 3 1 5 2

3 4 5 1 2

4 3 5 2 1

3 4 2 5 1

4 3 2 1 5

3 4 1 2 5

3 1 4 5 2

1 3 4 2 5

1 3 2 4 5

3 1 2 5 4

3 2 1 4 5

2 3 4 1 5

3 2 4 5 1

2 3 5 4 1

3 2 5 1 4

2 3 1 5 4

2 1 3 4 5

1 2 3 5 4

1 2 3 4 5

This Peal may be Rang Six-score several wayes. With one whole Hunt, and half Hunt, it may be Rang six wayes; in three of which, the whole Hunt is to be hunted up, and in the other three wayes it is to be hunted down; which six wayes are to be Rang, by making the Extream changes by the same rules, and in the same manner, as in Doubles and Singles on five Bells, *Old Doubles*, and *Paradox*, before set down; so that with the twenty Hunts, it may be Rang twenty times six wayes; which makes Six-score.

This Peal is grounded on the Twenty-four Changes, Doubles and Singles on four Bells, the half Hunt and three Extream Bells makes the Twenty-four Changes in perfect course; and in the same manner, as I shewed you in *Paradox*, and *Old Doubles*.

These following rules shews how to begin any Peal of *New Doubles*.

In hunting either the treble or fourth up, the first change must be double between the two first, and two last Bells, thus.

—

1 2 3 4 5
2 1 3 5 4

In hunting the treble down, the first change is single in third and fourths places, unless the extream is to be made.

—The fourth down, the first change is between the four first Bells.

Second up, first change double between the four hindmost Bells.

Second down, the first change is double between the two first, and two last Bells.

Third up, first change double between the four foremost Bells.

Third down, first change double between the four hindmost Bells.

Fifth up, double between the four first Bells.

Fifth down, first change double, two first and two last Bells.

Grandsire on five Bells.

Grandsire is the best and most ingenious Peal that ever was composed, to be rang on five bells, it having no dependance on the course of any other Peal. There are Sixscore changes in it, in pricking of which, there is the greatest variety of any other Peal whatsoever; for it may be prick't or rang some thousands of wayes. The common way of ringing it, is to make the Bobs and single changes when the whole Hunt leads, which course and method I will first set down, and afterward say something of the other wayes in ringing it. It has a whole hunt and half hunt, the changes are all double except two, which are single. The whole hunt has a perfect course in hunting up and down, and lies twice together before, and twice behind all the way; every other bell has the same course as the whole hunt, in moving and hunting up and down; and each bell lead twice together all the way, and lie twice together behind, except only at the Bobs. Every Bob-change is made between the two first and two last bells, the bell in thirds place lies full when every Bob-change is made, and then moves down; and every other double change is made between the four bells that stand together (*viz.*) either the four first, or four last bells. There are two sorts of Bobs, one of which is call'd a single Bob, and the other a double. The Rule for making the single Bob is this—When the whole hunt leads, and the half hunt lies in thirds place, the next is a Bob-change; in making of which, the whole hunt moves out of the trebles place up into the seconds place hunting up, and the bell which lies behind in the change next before the Bob, makes a dodge with the bell in fourths place, and then lies twice behind; and that bell which did dodge with the bell in tenors place, moves directly down; this is a single Bob, that is, one Bob-change. The Rule for making the double Bob is this—When the whole hunt lies in the seconds place hunting down, and the half hunt behind, then there is a double Bob, that is, two Bob-changes, one of which is made the next change wherein the whole Hunt moves out of the seconds place down before the bells, and the other bob is made the next change but one to it, in which the whole Hunt moves from before the bells up into the seconds place; the bell which lies in the thirds place when every Bob-change is made, lies there twice, and then moves down. And at every double Bob, the two hindmost bells continue dodging until the whole Hunt moves up into the seconds place, and parts them. Every time the whole Hunt comes before the bells, there is either a single Bob, or double Bob made, which comes by turns, one single, and the next double throughout the Peal.

The greatest variety of this Peal consists in making the single changes. In this way of Ringing it (with any whole Hunt and half Hunt) the first single change may be made either at the first, second, third, fourth, fifth, or sixth Bobs, at the single or double Bobs at pleasure; observing for a constant Rule, that the half Hunt is always one of the two bells which makes every single change; for the single changes are so contrived, that (in making them) the whole Hunt and half Hunt are to continue their constant course as at other times. At the single Bob, the single change is made in seconds and thirds places; and at the double Bob, 'tis made in fourth and fifths places, the other three bells lying still in their places, whil'st each single change is made; the next change to each single, is a Bob-change; every single change is made when the whole hunt lies before the bells; there being always sixty changes, from the first single change to the second; if the first single change is made at a single bob, then the second single change must be made at the third single bob from it; or if the first single change is made at a double bob, the second single change must be made at the third double bob from that where the first was made.

This Peal may be rang without making any single change therein, which is done by making a double change to supply the place of it. There are two of these double changes in each Peal; the first of them may be made at any bob within sixty changes from the beginning of the Peal, and the second is to be made just sixty changes from the first. At a double bob, it may be made at either of the two bob-changes; at the first of them, 'tis made by moving the whole Hunt down,

and the bell in thirds place up over two bells at once into the tenors place, thus:—

4 1 3 2 5
1 4 2 5 3

In making it at the second bob change of the double bob, 'tis the same as at the first, only in that the whole Hunt moved down to lead; but in this it must move up from before the bells into the seconds place, as in this change:—

1 2 4 3 5
2 1 3 5 4

The changes next following these, are the same as at other times. At the single bob, 'tis to be made when the whole Hunt lies in the seconds place hunting down; in which place it may be made two wayes, in one of which the bell in thirds place is to be moved up behind, in the same manner as I showed you at the double bob: The other way, is to move the bell in tenors place down into the thirds place, thus:—

5 1 4 2 3
1 5 3 4 2

Now the reason wherefore at this place it may be made two wayes, and at each of the double bob changes but one way, is this; At the double bob, the half Hunt lies behind, which cannot be moved into thirds place, for that would put it out of its course; but in the single bob, the half Hunt lying before the bells, and the whole Hunt in seconds place, so that neither of those bells are concerned therein; therefore it may be made either by moving the bell in thirds place up behind, or else by moving the hindmost bell down into thirds place, both which are to one effect, though different changes; for these changes are so continued, that (in making them) the whole Hunt and half Hunt are to continue their constant course, as at other times.

I have here set down this Peal of Grandsire, making the treble the whole Hunt, and the tenor the half Hunt, and the first single change is made the sixth bob; that is, the third double bob, which is sixty changes from the beginning of the Peal; you may know the single change, by the line drawn between the figures at the single change, that next after the line is the single: Grandsire is most commonly rang, as it is here prick't; but it may be rang any other way, according to my directions before.

1 2 3 4 5
2 1 3 5 4
2 3 1 4 5
3 2 4 1 5
3 4 2 5 1
4 3 5 2 1
4 5 3 1 2
5 4 1 3 2
5 1 4 2 3
1 5 2 4 3
1 2 5 3 4
2 1 5 4 3
2 5 1 3 4
5 2 3 1 4
5 3 2 4 1
3 5 4 2 1
3 4 5 1 2
4 3 1 5 2
4 1 3 2 5
1 4 3 5 2
1 3 4 2 5
3 1 4 5 2
3 4 1 2 5
4 3 2 1 5
4 2 3 5 1
2 4 5 3 1
2 5 4 1 3
5 2 1 4 3
5 1 2 3 4
1 5 3 2 4
1 3 5 4 2
3 1 5 2 4
3 5 1 4 2
5 3 4 1 2

54321
45231
42513
24153
21435
12453
14235
41253
42135
24315
23451
32541
35214
53124
51342
15432
14523
41532
45123
54213
52431
25341
23514
32154
31245
13254

13245
31254
32145
23415
24351
42531
45213
54123
51432
15342
13524
31542
35124
53214
52341
25431
24513
42153
41235
14253
12435
21453
24135
42315
43251
34521
35412
53142
51324
15234
12543
21534
25143
52413
54231

4 5 3 2 1
 4 3 5 1 2
 3 4 1 5 2
 3 1 4 2 5
 1 3 4 5 2
 1 4 3 2 5
 4 1 3 5 2
 4 3 1 2 5
 3 4 2 1 5
 3 2 4 5 1
 2 3 5 4 1
 2 5 3 1 4
 5 2 1 3 4
 5 1 2 4 3
 1 5 4 2 3
 1 4 5 3 2
 4 1 5 2 3
 4 5 1 3 2
 5 4 3 1 2
 5 3 4 2 1
 3 5 2 4 1
 3 2 5 1 4
 2 3 1 5 4
 2 1 3 4 5
 1 2 3 5 4

 1 2 3 4 5

Grandsire may be rang another way (*i.e.*) in making the bobs when the whole Hunt is before the bells (as in the former way) and to make the single changes when it lies behind (*viz.*) the first single change may be made at any time when the whole Hunt comes behind, provided it be made within sixty changes from the beginning of the Peal; if it is made the next time the whole Hunt comes behind after a single bob, it is in treble and seconds places; after a double bob, it is made in third and fourths places, the whole Hunt lying behind when each single change is made, and the second single change must be made just sixty changes from the first.

In all the several Peals of Grandsire by the course aforesaid, the first changes in each Peal must be made by these following Rules:

B 1,3
 B 1,5
 2,3
 2,4
 3,2
 3,5
 4,1
 4,5
 5,1
 5,4
 1,2
 1,4
 2,1
 B 2,5
 3,1
 3,4
 4,2
 4,3
 5,2
 5,3

With these ten Hunts, the whole Hunt is to be hunted up at the beginning of each Peal.

With these ten Hunts, the first change in each Peal is made by hunting the whole Hunt down.

These are the twenty Hunts on five bells, which are set down in [Page 26](#). The two figures which stand together, do represent the whole Hunt and half Hunt; for instance, the uppermost figures are 1,3; the 1 is the whole Hunt, and the 3 is the half Hunt, and so of the rest. Where the letter B stands by the Hunt, the first change that Hunt makes is a Bob: But with all the other Hunts, the first change is either between the four first, or four last bells; yet the first change in many of them may be made single, as in 1,2: 1,3: 1,4: 1,5: 2,1: 2,3: 3,1: 3,5: 4,1: 4,3: 1,5: 5,1: 5,4:

In hunting the treble down, the first change is made between the four hindmost bells; and in hunting the fifth bell up, the first change is made between the four foremost bells.

There is another way to Ring this Peal of Grandsire, which is, to make the bobs and single changes when the whole hunt

lies behind the bells; but this is not convenient to be practised, therefore I will say no more of it in this place, having only mentioned this, to shew the great variety there is in this Peal.

This Peal of Grandsire is to be Rang by another course, *viz.* to make the bobs when the whole hunt is behind the bells, and the single changes, when it lies before them. This is the absolute foundation from whence the excellent Peal of Grandsire bob (on six bells) had its beginning and method, and by practising to prick down this Peal, and by observing the true course and method of the bobs and single changes herein, you may with the greatest ease understand the true course of the bobs and single changes in Grandsire bob on six bells, for the half hunt, the quarter hunt, and the three extream bells (in Grandsire bob on six bells) do make these sixscore changes; every time the whole hunt leads in Grandsire bob, there are two changes made in this Peal of Grandsire on five bells: And so consequently, the single changes in Grandsire bob are made by the same rule and method as they are in this Peal. The Rule for making the bobs in this Peal, is this (*viz.*) when the whole hunt lies in the fourths place hunting up, and the half hunt leads, the next is a double Bob: And when the whole hunt lies in the tenors place, and the half hunt in thirds place, then the next change is a single bob, the bobs are made between the two first and two last bells, that in thirds place lies still in the bob change, and then moves up. The single changes are made when the whole hunt leads; the first single change (in Ringing it with any whole hunt and half hunt) may be made at any time when the whole hunt leads, within sixty changes from the beginning of the Peal, accounting the bells as they stand round at the beginning for one of the sixty changes. The single change that is made the next time the whole hunt leads after a single bob, is made in fourth and fifths places; and that which is made next after a double bob, is made in second and thirds places, the half hunt is always one of the two bells which makes every single change. If the first single change is made after a single bob, then the second single change must be made when the whole hunt leads next after the third single bob from that after which the first single was made; and the same is observed, in making them after a double bob: there being always sixty changes from the first to the second single change in each Peal. This Peal I have here set down, in which I make the treble the whole hunt, the fifth the half hunt, and the first single change is made when the whole hunt comes to lead next after the first single bob: You may know the single change, by the line drawn between the figures; the change next below the line, is the single, as in the following Peal.

1 2 3 4 5
1 3 2 5 4
3 1 5 2 4
3 5 1 4 2
5 3 4 1 2
3 5 4 2 1
5 3 2 4 1
3 5 2 1 4
5 3 1 2 4
5 1 3 4 2
1 5 4 3 2
1 4 5 2 3
4 1 2 5 3
4 2 1 3 5
2 4 3 1 5
2 3 4 5 1
3 2 5 4 1
2 3 5 1 4
3 2 1 5 4
3 1 2 4 5
1 3 4 2 5

1 3 4 5 2
3 1 5 4 2
3 5 1 2 4
5 3 2 1 4
3 5 2 4 1
5 3 4 2 1
3 5 4 1 2
5 3 1 4 2
5 1 3 2 4
1 5 2 3 4
1 2 5 4 3
2 1 4 5 3
2 4 1 3 5
4 2 3 1 5
4 3 2 5 1
3 4 5 2 1
4 3 5 1 2
3 4 1 5 2

31425
13245
12354
21534
25143
52413
25431
52341
25314
52134
51243
15423
14532
41352
43125
34215
32451
23541
32514
23154
21345
12435
14253
41523
45132
54312
45321
54231
45213
54123
51432
15342
13524
31254
32145
23415
24351
42531
24513
42153
41235
14325

14352
41532
45123
54213
45231
54321
45312
54132
51423
15243
12534
21354
23145
32415
34251
43521
34512
43152
41325

1 4 2 3 5
 1 2 4 5 3
 2 1 5 4 3
 2 5 1 3 4
 5 2 3 1 4
 2 5 3 4 1
 5 2 4 3 1
 2 5 4 1 3
 5 2 1 4 3
 5 1 2 3 4
 1 5 3 2 4
 1 3 5 4 2
 3 1 4 5 2
 3 4 1 2 5
 4 3 2 1 5
 4 2 3 5 1
 2 4 5 3 1
 4 2 5 1 3
 2 4 1 5 3
 2 1 4 3 5
 1 2 3 4 5

This Peal may be Rang without making any single change therein, there are two double changes which may be made to supply the places of the two single changes; the first of these double changes in any Peal may be made any time when the whole hunt lies in fourths place hunting up, provided you make it within sixty changes from the beginning of the Peal. At a double bob, it may be made at either of the two bob changes, by moving the bell which lies in thirds place down under two bells at once into the trebles place: Now suppose it were to be made the first time the whole hunt lies in the fourths place hunting up in the Peal next before, which is at a double bob, the bells lie thus, 53412; now the treble being the whole hunt must move up behind, and the fourth bell being in thirds place, must move down under two bells at once into the trebles place, thus, 45321; or else it may be made at the next bob change of the double bob, 53241; here the treble must be moved down into fourths place, and the second bell into trebles place, thus, 25314. It may also be made the change next before the single bob, in which change it may be made two wayes; *viz.* either by moving the bell in thirds place down into trebles place, as in the changes next before, or else by moving the bell in trebles place up into thirds place; for instance, two changes before the first single bob (as in the Peal before set down) the bells be thus, 24315; now the change may be made, either by moving the third bell into the trebles place, thus, 32451; or else the bell that leads up into thirds place, thus, 43251; in both which wayes, the whole hunt is to be moved up behind.

There are only two of these double changes to be made in each Peal: if the first is made at a double bob, then the second must be made at the third double bob from it; or if the first of them is made at a single bob, then the second must be made at the third single bob from that where the first was made, there being always just sixty changes from the first of these double changes to the second in each Peal.

These double changes are the same which in Grandsire bob on six bells, are called true changes; those true changes in Grandsire bob being made by the same rule, and in the same manner as these are.

In all the Peals of Grandsire, wherein the bobs are made when the whole hunt is behind (according to the Rules next before set down) the first changes in each Peal must be made by these Rules following.

1,2
 1,5
 2,1
 2,5
 3,1
 3,4
 4,2
 4,3
 B 5,1
 B 5,3
 1,3
 1,4
 2,3
 2,4
 3,1
 3,5
 B 4,1
 4,5
 5,4
 5,2

With these ten Hunts, the first change in each Peal is made by hunting down the whole Hunt.

With these ten Hunts, the first change in each Peal is made by hunting the whole Hunt up.

Where the letter B stands next to any hunt; the first change which that hunt makes, is a bob: But with all the other hunts, the first change in each Peal is made double, either between the four first, or four last bells; yet in many of them, the first change may be made single, as in 1,2: 1,5: 2,1: 2,3: 2,5: 3,5: 4,3: 4,5: 5,2: 5,3:

Before I conclude my directions to this excellent Peal of Grandsire, I will set down one general Rule for making the single changes in any Peal (at places differing from any of the former Rules) *viz.* wheresoever the whole hunt and half hunt meets together to make a change (which constantly happens every time the whole hunt hunts up, and every time it hunts down in every Peal) the other three bells may lie still in their places, whil'st the whole hunt and half hunt makes the change; which being made, the whole hunt, the half hunt, and the other bells are immediately to proceed in their course; which single change is as effectual, as those which are made by the Rules aforesaid. Observing to make the first single change in any Peal, within sixty changes from the beginning; and the second single change must be made (just sixty changes from the first) between the whole hunt, and half hunt, which two bells will in course lie in the same places where the first single change was made.

The Seven-score and four on six Bells.

This Peal containing Seven-score and four changes, is to be Rang on six bells, in which, the treble and tenor are both whole hunts, and the second is half hunt; the whole hunts do both hunt at one and the same time in a direct course, one up, and the other down; and always when one of them lies before the bells, the other lies behind them; and when that hunt which lies before the bells, leaves the trebles place hunting up, the other hunt lying behind, leaves the tenors place hunting down; each hunt lies only twice together before the bells, and twice behind throughout the Peal.

The second bell is the half hunt in this following Peal, for the second, third, fourth and fifth bells make the twenty four changes herein; every time the whole hunts come before and behind the bells, there is one change made in the Twenty-four (which is always once in six changes) the second bell being the hunt on the Twenty-four; so that every time it comes before or behind the extream bells, there is an extream change to be made, which in the following Peal is made between the two farthest extream bells from the second. I have only set down part of this Peal, which is sufficient to shew the course and method thereof.

1 2 3 4 5 6
2 1 3 4 6 5
2 3 1 6 4 5
2 3 6 1 4 5
2 6 3 4 1 5
6 2 3 4 5 1
6 3 2 4 5 1
3 6 2 4 1 5
3 2 6 1 4 5
3 2 1 6 4 5
3 1 2 4 6 5
1 3 2 4 5 6
1 3 4 2 5 6
3 1 4 2 6 5
3 4 1 6 2 5
3 4 6 1 2 5
3 6 4 2 1 5
6 3 4 2 5 1
6 3 4 5 2 1
3 6 4 5 1 2
3 4 6 1 5 2
3 4 1 6 5 2
3 1 4 5 6 2
1 3 4 5 2 6

1 4 3 5 2 6
4 1 3 5 6 2
4 3 1 6 5 2
4 3 6 1 5 2
4 6 3 5 1 2
6 4 3 5 2 1
6 4 3 2 5 1
4 6 3 2 1 5
4 3 6 1 2 5
4 3 1 6 2 5
4 1 3 2 6 5
1 4 3 2 5 6
1 4 2 3 5 6

4 1 2 3 6 5

4 2 1 6 3 5

At the extream change next before, I have drawn a line between the figures, that next below the line is the extream: The aforesaid Peal may be Rang with any other whole hunt, or half hunt; and also the Twenty-four changes doubles and singles, may be made in the room of the plain Twenty-four in the aforesaid Peal.

Trebles and Doubles on six Bells.

There are many Peals of Trebles and Doubles to be Rang on six bells, as, Six-score changes, Seven-score and four, Twelve-score, and Seven-hundred and twenty. In each of which Peals, the changes that are made from the time that the whole hunt leaves the trebles place hunting up, until it comes down into that place again, are all made in one and the same manner, so that the only difference in these Peals, consists in making the changes when the whole hunt leads. These Peals are called Trebles and Doubles, because one is a treble change (that is, 3 changes made together, in which all the six bells do change their places, thus, 123456:214365:) and the next is a double change between the 4 bells, in the midst, thus, 241635: And in this course the changes are alwayes made from the time that the whole hunt leaves the trebles place hunting up, until it comes down into the trebles place again; and in Ringing this Peal, 'tis observed, that every bell does hunt in a perfect and direct course, and be twice together before, and twice behind, until the whole hunt leads.

The manner of Ringing the Seven-score and four, is this; the treble and tenor are both whole hunts, and the second is the half hunt; the first change is a treble change, and the next a double change, as I shewed you before; in which course they are made, until the treble leads again, and the tenor lie behind; at which time there's a single change to be made in third and fourths places: But when the half hunt lies next to the treble, then the next single change must be made in fourths and fifts places, as in this following Peal, where I have only set down part of it for an example.

1 2 3 4 5 6

2 1 4 3 6 5

2 4 1 6 3 5

4 2 6 1 5 3

4 6 2 5 1 3

6 4 5 2 3 1

6 5 4 3 2 1

5 6 3 4 1 2

5 3 6 1 4 2

3 5 1 6 2 4

3 1 5 2 6 4

1 3 2 5 4 6

1 3 5 2 4 6

3 1 2 5 6 4

3 2 1 6 5 4

2 3 6 1 4 5

2 6 3 4 1 5

6 2 4 3 5 1

6 4 2 5 3 1

4 6 5 2 1 3

4 5 6 1 2 3

5 4 1 6 3 2

5 1 4 3 6 2

1 5 3 4 2 6

1 5 4 3 2 6

5 1 3 4 6 2

5 3 1 6 4 2

3 5 6 1 2 4

3 6 5 2 1 4

6 3 2 5 4 1

6 2 3 4 5 1

2 6 4 3 1 5

2 4 6 1 3 5

4 2 1 6 5 3

4 1 2 5 6 3

1 4 5 2 3 6

1 4 2 5 3 6

4 1 5 2 6 3

4 5 1 6 2 3

5 4 6 1 3 2
5 6 4 3 1 2
6 5 3 4 2 1
6 3 5 2 4 1
3 6 2 5 1 4
3 2 6 1 5 4
2 3 1 6 4 5
2 1 3 4 6 5
1 2 4 3 5 6

1 2 4 5 3 6
2 1 5 4 6 3
2 5 1 6 4 3
5 2 6 1 3 4
5 6 2 3 1 4
6 5 3 2 4 1

This Peal is grounded on the Twenty-four changes doubles and singles, the second, third, fourth and fifth makes the Twenty-four changes; the second bell is the hunt in the Twenty-four, therefore the extream in the Peal next before, is made between the two farthest extream bells from it when it lies before them: At the extream changes there's a line drawn between the figures, but the extreams may be made every time the second lies behind the extream bells; or else, every time it lies before and behind them, in the same manner, as I told you before in my directions to the Twenty-four Doubles and Singles: And this Peal may be also Rang with any other whole hunts, or half hunts.

In the Six-score Trebles and Doubles, the changes are the same as in the Peal next before, until the whole hunt leads, at which time (in this Peal) there is a double change to be made between the four hindmost bells; but when the whole hunt leads, and the half hunt lies next to it, then there is a single change to be made, either between the two nearest bells to the half hunt, or else between the two farthest bells from it; there are but two single changes in the Peal, and the second single change must be made between those two bells which made the first. In this following, the treble is the whole hunt, and the second the half hunt, and the first single change is made when the bells do lie 124365: which is sixty changes from the beginning of the Peal; after the whole hunt has at first hunted up and down again: I have set down only those changes which are made every time the whole hunt leads.

1 2 3 4 5 6
2 1 4 3 6 5
2 4 1 6 3 5
4 2 6 1 5 3
4 6 2 5 1 3
6 4 5 2 3 1
6 5 4 3 2 1
5 6 3 4 1 2
5 3 6 1 4 2
3 5 1 6 2 4
3 1 5 2 6 4
1 3 2 5 4 6
1 3 5 2 6 4

1 5 3 6 2 4
1 5 6 3 4 2

1 6 5 4 3 2
1 6 4 5 2 3
1 4 6 2 5 3
1 4 2 6 3 5

1 2 4 3 6 5

1 2 3 4 6 5

1 3 2 6 4 5
1 3 6 2 5 4

1 6 3 5 2 4
1 6 5 3 4 2
1 5 6 4 3 2

1 5 4 6 2 3

1 4 5 2 6 3

1 4 2 5 3 6

1 2 4 3 5 6

1 2 3 4 5 6

The course of the Twelve-score, and the Seven-hundred and twenty, are both one and the same; for the Twelve-score changes, are only part of the Seven-hundred and twenty. There's a whole hunt, a half hunt, a quarter hunt, and three extream bells in the Seven-hundred and twenty; the changes are all treble and double (in the same course, as in the Six-score next before set down) until the whole hunt leads, and the half hunt lies next to it, at which time there's a single change to be made in fourth and fifth places: But when the whole hunt leads, and the half hunt lies next to it, and the quarter hunt lies next to the half hunt, then there's an extream to be made, which is a single change, and made between the two farthest extream bells from the quarter hunt; and by observing this course, you may prick down, or Ring the Seven-hundred and twenty: But if you would only Ring Twelve-score changes (and then end there, by bringing the bells round) you must make no extream change at all; for in making every single change in fourth and fifth places, the bells will come round in course at the end of Twelve-score changes if you make no extream change to carry the Peal forward. In the following changes, the treble is the whole hunt, the 2 is the half hunt, the 3 the quarter hunt, and the 4, 5, and 6, are the extream bells. It being not much material to set down this Peal at large, therefore after the treble (which is the whole hunt) has hunted twice up and down, I have put down only the two changes which are made every time the treble leads to the end of the Twelve-score, as follows.

1 2 3 4 5 6

2 1 4 3 6 5

2 4 1 6 3 5

4 2 6 1 5 3

4 6 2 5 1 3

6 4 5 2 3 1

6 5 4 3 2 1

5 6 3 4 1 2

5 3 6 1 4 2

3 5 1 6 2 4

3 1 5 2 6 4

1 3 2 5 4 6

1 3 5 2 6 4

3 1 2 5 4 6

3 2 1 4 5 6

2 3 4 1 6 5

2 4 3 6 1 5

4 2 6 3 5 1

4 6 2 5 3 1

6 4 5 2 1 3

6 5 4 1 2 3

5 6 1 4 3 2

5 1 6 3 4 2

1 5 3 6 2 4

1 5 6 3 4 2

1 6 5 4 3 2

1 6 4 5 2 3

1 4 6 2 5 3

1 4 2 6 3 5

1 2 4 3 6 5

single

1 2 4 6 3 5

1 4 2 3 6 5

1 4 3 2 5 6

1 3 4 5 2 6

1 3 5 4 6 2

1 5 3 6 4 2

1 5 6 3 2 4

1 6 5 2 3 4

1 6 2 5 4 3

1 2 6 4 5 3

single

1 2 6 5 4 3

1 6 2 4 5 3

1 6 4 2 3 5

1 4 6 3 2 5

1 4 3 6 5 2

1 3 4 5 6 2

1 3 5 4 2 6

1 5 3 2 4 6

1 5 2 3 6 4

1 2 5 6 3 4

single

1 2 5 3 6 4

1 5 2 6 3 4

1 5 6 2 4 3

1 6 5 4 2 3

1 6 4 5 3 2

1 4 6 3 5 2

1 4 3 6 2 5

1 3 4 2 6 5

1 3 2 4 5 6

1 2 3 5 4 6

The last change is 123456: which is at the end of Twelve-score changes; and here you see, that the whole hunt, the half hunt, and quarter hunt, do lie next to each other before the extream bells; therefore the bells may either be brought round, by making the single change in the same place, as those next before, are made thus, 123456: or else, if you would proceed forward to the end of the Seven-hundred and twenty, then the next must be an extream change between the fourth and sixth, which are the 2 hindmost bells, thus, 123564: and by observing to make an extream change behind every time the 1, 2, 3, lie together before the bells, the bells will come round in course at the end of the Seven-hundred and twenty; at the end of every Three score changes, there's a single change throughout the Peal, and an extream change at the end of every Twelve-score. This Peal (by the Rules aforesaid) may be Rang with any whole hunt, half hunt, and quarter hunt.

In this Peal is contained the Six-score changes of Old Doubles on five bells, and also the Twenty-four changes Doubles and Singles on four bells; the half hunt, the quarter hunt, and three extream bells, makes the Six-score changes of Old Doubles in a perfect course; and the quarter hunt, and three extream bells, do make the Twenty-four changes Doubles and Singles. Every time the whole hunt leads, there are made two changes of the Six-score; and every time the whole hunt leads, and the half hunt lies next to it, there are two changes made in the Twenty-four.

Grandsire Bob. On six Bells.

In this Peal of Grandsire Bob, there are Seven-hundred and twenty changes, in Ringing of which, there is the same course, as in Trebles and Doubles (before set down) until the bob-changes come to be made; this Peal may more properly be called Trebles and Doubles than the former, because all the changes throughout the Seven-hundred and twenty, are treble and double, except only the two single changes: But in Ringing an Eighteen-score (which is half the Seven-hundred and twenty, and a complete Peal of it self) the changes are all treble and double without any single change therein; for you must know, that in any Peal of Grandsire bob, the bells will come round in course at the end of Eighteen-score changes, if you make no single change to carry it on farther to the end of the Seven-hundred and twenty.

This Peal has a whole hunt, a half hunt, a quarter hunt, and three extream bells; every bell hunts in a direct course, and lies twice together before, and twice behind, until the whole hunt leads, and then the four hindmost bells do dodge, that is, they make a double change; in which 'tis always observed, that the two bells which lie in third and fifts places (in the change next before the dodge) are hunting down, and in making this double change, each of those bells do dodge with the bell next above it, that is, they move up over one bell, and then each of them moves directly down; and the two bells that lie in fourth and tenors places in the change next before every dodge, are hunting up, and in making the dodge change, each of those bells do move down under one bell, and then they move up again in their course, as before; the dodge changes in all Peals of Trebles and Doubles, are made in the same manner as these.

There are two sorts of bobs in this Peal, *viz.* a single, and a double Bob; the Rule for making the single bob, is this, when the whole hunt leads, and the half hunt lies in tenors place, and the quarter hunt in fourths place, the next change is a bob; and when the whole hunt leads, and the half hunt lies in fifts place, and the quarter hunt in seconds place, then there is a double bob, that is, two bob-changes; one of which is made the next change, and the other is made the next time the whole hunt leads after. The bobs are all double changes, and made in one and the same manner (*i.e.*) the leading bell, and that in fourths place, do both lie still, whil'st the two bells in second and thirds places, and those in fifth and tenors places make the bob-change; and as soon as 'tis made, the bell in fourths place moves directly down. The half hunt is always one of the two hindmost bells which makes every bob-change.

In Ringing this Peal, there is a Rule observed, whereby the person that does Ring the quarter hunt, may give notice of the bobs before they come to be made, without which it were impossible to Ring it; the Rule is this: In the dodge which is made between the four hindmost bells every time the whole hunt leads, if the half hunt and quarter hunt do dodge in fifth and tenors place, then the next time the whole hunt leads, there's a single bob; if they dodge in fourth and thirds places, then there's a double bob that is, two bob-changes, one of which is made the next time, the whole hunt leads after the dodge, and the other is made the next time the whole hunt leads after the former is made: He that does Ring the quarter hunt, may give notice of every bob-change, by saying (Bob) when the whole hunt is going to lead, which is a change next before the bob is to be made.

There are certain Rules very convenient to be known by all that practise to Ring this Peal; (*viz.*) he that does Ring the whole hunt, must observe that the bell which he first follows when he leaves the trebles place hunting up, he must follow the same bell the next time he lies behind; and the second bell which he follows in hunting up, he must also follow the same bell when he next leaves the tenors place hunting down; and likewise, the third bell which he follows in hunting up, he must also follow the same bell when he leaves the fifts place hunting down: For instance, in the first change of the following Peal, the bells stand thus: 214365: here the treble (being the whole hunt) does first follow the second, therefore when the treble has hunted up, and lies behind, it follows the second again, as in this change, 654321: And again, the second change of the following Peal, is 241635: here the fourth is the second bell, which the treble follows in hunting up, therefore he follows that bell again the next time he leaves the tenors place hunting down, as in this change, 563412: which course is observed throughout the Peal. And in Ringing any other bell (beside the whole Hunt) 'tis observed, that the next time you lie before the bells after a bob, that bell which you first follow in hunting up, you must also follow the same bell when you lie behind; and the same bell you must first follow every time you hunt up, and every time you lie behind, until the next bob comes to be made, but if the whole hunt is the second bell which you follow in hunting up, then you must follow the whole Hunt when you lie behind; and the next time you lead, and lie behind, you must follow the former bell as before, until the bobs come to be made; and after the bobs, the course is the same (though you do not follow the same bell) as before.

These Rules and Directions before set down, are to be observed in Ringing any Peal of Grandsire bob with any whole Hunt, half Hunt, and quarter Hunt: An Example I have here set down, wherein the treble is the whole Hunt, the second the half Hunt, and the fourth the quarter Hunt, as in these following changes.

1 2 3 4 5 6
2 1 4 3 6 5
2 4 1 6 3 5
4 2 6 1 5 3
4 6 2 5 1 3
6 4 5 2 3 1
6 5 4 3 2 1
5 6 3 4 1 2
5 3 6 1 4 2
3 5 1 6 2 4
3 1 5 2 6 4
1 3 2 5 4 6
1 3 5 2 6 4
3 1 2 5 4 6
3 2 1 4 5 6
2 3 4 1 6 5
2 4 3 6 1 5
4 2 6 3 5 1
4 6 2 5 3 1
6 4 5 2 1 3
6 5 4 1 2 3
5 6 1 4 3 2
5 1 6 3 4 2

1 5 3 6 2 4
1 5 6 3 4 2
5 1 3 6 2 4
5 3 1 2 6 4
3 5 2 1 4 6
3 2 5 4 1 6
2 3 4 5 6 1
2 4 3 6 5 1
4 2 6 3 1 5
4 6 2 1 3 5
6 4 1 2 5 3
6 1 4 5 2 3
1 6 5 4 3 2

1 5 6 4 2 3
5 1 4 6 3 2
5 4 1 3 6 2
4 5 3 1 2 6
4 3 5 2 1 6
3 4 2 5 6 1
3 2 4 6 5 1
2 3 6 4 1 5
2 6 3 1 4 5
6 2 1 3 5 4
6 1 2 5 3 4
1 6 5 2 4 3
1 6 2 5 3 4
6 1 5 2 4 3
6 5 1 4 2 3
5 6 4 1 3 2
5 4 6 3 1 2
4 5 3 6 2 1
4 3 5 2 6 1
3 4 2 5 1 6
3 2 4 1 5 6
2 3 1 4 6 5
2 1 3 6 4 5
1 2 6 3 5 4
1 2 3 6 4 5
2 1 6 3 5 4
2 6 1 5 3 4
6 2 5 1 4 3
6 5 2 4 1 3
5 6 4 2 3 1
5 4 6 3 2 1
4 5 3 6 1 2
4 3 5 1 6 2
3 4 1 5 2 6
3 1 4 2 5 6
1 3 2 4 6 5
1 3 4 2 5 6
3 1 2 4 6 5
3 2 1 6 4 5
2 3 6 1 5 4
2 6 3 5 1 4
6 2 5 3 4 1
6 5 2 4 3 1
5 6 4 2 1 3
5 4 6 1 2 3
4 5 1 6 3 2
4 1 5 3 6 2
1 4 3 5 2 6

1 3 4 5 6 2
3 1 5 4 2 6
3 5 1 2 4 6
5 3 2 1 6 4
5 2 3 6 1 4
2 5 6 3 4 1
2 6 5 4 3 1
6 2 4 5 1 3
6 4 2 1 5 3
4 6 1 2 3 5
4 1 6 3 2 5
1 4 3 6 5 2

1 3 4 6 2 5
3 1 6 4 5 2
3 6 1 5 4 2
6 3 5 1 2 4
6 5 3 2 1 4
5 6 2 3 4 1
5 2 6 4 3 1
2 5 4 6 1 3
2 4 5 1 6 3
4 2 1 5 3 6
4 1 2 3 5 6
1 4 3 2 6 5
1 4 2 3 5 6
4 1 3 2 6 5
4 3 1 6 2 5
3 4 6 1 5 2
3 6 4 5 1 2
6 3 5 4 2 1
6 5 3 2 4 1
5 6 2 3 1 4
5 2 6 1 3 4
2 5 1 6 4 3
2 1 5 4 6 3
1 2 4 5 3 6
1 2 5 4 6 3
2 1 4 5 3 6
2 4 1 3 5 6
4 2 3 1 6 5
4 3 2 6 1 5
3 4 6 2 5 1
3 6 4 5 2 1
6 3 5 4 1 2
6 5 3 1 4 2
5 6 1 3 2 4
5 1 6 2 3 4
1 5 2 6 4 3
1 5 6 2 3 4
5 1 2 6 4 3
5 2 1 4 6 3
2 5 4 1 3 6
2 4 5 3 1 6
4 2 3 5 6 1
4 3 2 6 5 1
3 4 6 2 1 5
3 6 4 1 2 5
6 3 1 4 5 2
6 1 3 5 4 2
1 6 5 3 2 4

1 6 3 5 4 2
6 1 5 3 2 4
6 5 1 2 3 4
5 6 2 1 4 3
5 2 6 4 1 3
2 5 4 6 3 1
2 4 5 3 6 1
4 2 3 5 1 6
4 3 2 1 5 6
3 4 1 2 6 5
3 1 4 6 2 5
1 3 6 4 5 2

1 6 3 4 2 5
6 1 4 3 5 2
6 4 1 5 3 2
4 6 5 1 2 3
4 5 6 2 1 3
5 4 2 6 3 1
5 2 4 3 6 1
2 5 3 4 1 6
2 3 5 1 4 6
3 2 1 5 6 4
3 1 2 6 5 4
1 3 6 2 4 5
1 3 2 6 5 4
3 1 6 2 4 5
3 6 1 4 2 5
6 3 4 1 5 2
6 4 3 5 1 2
4 6 5 3 2 1
4 5 6 2 3 1
5 4 2 6 1 3
5 2 4 1 6 3
2 5 1 4 3 6
2 1 5 3 4 6
1 2 3 5 6 4
1 2 5 3 4 6
2 1 3 5 6 4
2 3 1 6 5 4
3 2 6 1 4 5
3 6 2 4 1 5
6 3 4 2 5 1
6 4 3 5 2 1
4 6 5 3 1 2
4 5 6 1 3 2
5 4 1 6 2 3
5 1 4 2 6 3
1 5 2 4 3 6
1 5 4 2 6 3
5 1 2 4 3 6
5 2 1 3 4 6
2 5 3 1 6 4
2 3 5 6 1 4
3 2 6 5 4 1
3 6 2 4 5 1
6 3 4 2 1 5
6 4 3 1 2 5
4 6 1 3 5 2
4 1 6 5 3 2
1 4 5 6 2 3

154632
516423
561243
652134
625314
263541
236451
324615
342165
431256
413526
145362

154326
513462
531642
356124
365214
632541
623451
264315
246135
421653
412563
145236
142563
415236
451326
543162
534612
356421
365241
632514
623154
261345
216435
124653
126435
214653
241563
425136
452316
543261
534621
356412
365142
631524
613254
162345
163254
612345
621435
264153
246513
425631
452361
543216
534126
351462
315642
136524
135642

3 1 6 5 2 4
3 6 1 2 5 4
6 3 2 1 4 5
6 2 3 4 1 5
2 6 4 3 5 1
2 4 6 5 3 1
4 2 5 6 1 3
4 5 2 1 6 3
5 4 1 2 3 6
5 1 4 3 2 6
1 5 3 4 6 2

1 3 5 4 2 6
3 1 4 5 6 2
3 4 1 6 5 2
4 3 6 1 2 5
4 6 3 2 1 5
6 4 2 3 5 1
6 2 4 5 3 1
2 6 5 4 1 3
2 5 6 1 4 3
5 2 1 6 3 4
5 1 2 3 6 4
1 5 3 2 4 6
1 5 2 3 6 4
5 1 3 2 4 6
5 3 1 4 2 6
3 5 4 1 6 2
3 4 5 6 1 2
4 3 6 5 2 1
4 6 3 2 5 1
6 4 2 3 1 5
6 2 4 1 3 5
2 6 1 4 5 3
2 1 6 5 4 3
1 2 5 6 3 4
1 2 6 5 4 3
2 1 5 6 3 4
2 5 1 3 6 4
5 2 3 1 4 6
5 3 2 4 1 6
3 5 4 2 6 1
3 4 5 6 2 1
4 3 6 5 1 2
4 6 3 1 5 2
6 4 1 3 2 5
6 1 4 2 3 5
1 6 2 4 5 3
1 6 4 2 3 5
6 1 2 4 5 3
6 2 1 5 4 3
2 6 5 1 3 4
2 5 6 3 1 4
5 2 3 6 4 1
5 3 2 4 6 1
3 5 4 2 1 6
3 4 5 1 2 6
4 3 1 5 6 2
4 1 3 6 5 2
1 4 6 3 2 5

1 6 4 3 5 2
6 1 3 4 2 5
6 3 1 2 4 5
3 6 2 1 5 4
3 2 6 5 1 4
2 3 5 6 4 1
2 5 3 4 6 1
5 2 4 3 1 6
5 4 2 1 3 6
4 5 1 2 6 3
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1 4 6 5 3 2

1 6 4 5 2 3
6 1 5 4 3 2
6 5 1 3 4 2
5 6 3 1 2 4
5 3 6 2 1 4
3 5 2 6 4 1
3 2 5 4 6 1
2 3 4 5 1 6
2 4 3 1 5 6
4 2 1 3 6 5
4 1 2 6 3 5
1 4 6 2 5 3
1 4 2 6 3 5
4 1 6 2 5 3
4 6 1 5 2 3
6 4 5 1 3 2
6 5 4 3 1 2
5 6 3 4 2 1
5 3 6 2 4 1
3 5 2 6 1 4
3 2 5 1 6 4
2 3 1 5 4 6
2 1 3 4 5 6
1 2 4 3 6 5

Here are just Eighteen-Score changes already made, and the bells may either be brought round in their places, by making a dodg-change behind (according to the common course), thus,

1 2 4 3 6 5
1 2 3 4 5 6

but to have proceeded forward in the 720, the last should have been a single change in third and fourths places, thus,

1 2 4 3 6 5
1 2 3 4 6 5

the single change being made, all the following changes to the end of the 720 are to be made, by the same rule and course as those before set down, the last change of the 720 being also a single change, and to be made in the same place, and between those two bells which made the former single, thus,

1 2 4 3 5 6
1 2 3 4 5 6

which single change brings the bells round in their right places at the end of the 720.

This Peal of Grandsire bob may be Rang with any whole Hunt, half Hunt, and quarter Hunt; but there being some difficulty in beginning many of the Peals, I have therefore set down Directions for beginning each Peal, as follows.

1.2.4
1.2.5
1.3.2

2.3.6 In Ringing Grandsire bob with any of these eight Hunts, the first changes in each Peal are to be made in the same manner, as those in the Peal before set down, until the first bob in each Peal comes to be made.
1.4.6
1.5.3

1.5.4
1.6.3

1.2.3
1.2.6 With these five Hunts, the first change in each Peal is a dodge between the four hindmost bells: thus,
1.3.5 123456
1.4.2 124365
1.4.5

Each three figures that stand together next before, do represent a whole Hunt, a half Hunt, and quarter Hunt: for instance, the uppermost figures in the first Column, are 1.2.4. there the treble is the whole Hunt, the second the half Hunt, and the fourth the quarter Hunt, and so of the rest.

In making the treble the whole Hunt, the fifth the half Hunt, and the sixth the quarter Hunt; the first change is a dodge between the four hindmost bells, in which the half and quarter Hunt do dodge together in fifth and tenors places, therefore the next time the whole hunt comes before the bells, there's a single bob.

In ringing treble, tenor, and fifth, the whole Hunt moves up the first change, thus 214365, and so on in the common course until it comes next before the bells, at which time there's a single bob.

In ringing treble, fourth, and third, the whole Hunt moves up the first change, thus, 214365, and so forward in the common course, until it leads again; at which time there's a bob-change to be made, and another the next time the whole Hunt leads after that, it being a double bob.

In ringing treble, third, and fourth, the first is a dodge-change between the four hindmost bells, in which the half Hunt and quarter Hunt do dodge together in third and fourths places, therefore a double bob is next to be made, one of which bob-changes is the next time the whole Hunt leads, and the other the next following. In ringing treble, fifth, and second, the first is a bob-change; and the next time the whole Hunt leads, there's another bob-change, it being a double bob.

In Ringing treble, sixth, and second, and treble, sixth, and fourth, the first change in each of these two Peals is a bob.

2.4.6
5.3.4 With these four Hunts, the first change is treble, and the next double, thus, 214365, and so on, till the whole Hunt 6.1.2 leads.
5.3.1
3.5.2
4.6.2
6.2.1 With these five Hunts, the first change must be made between the four bells in the midst, thus, 132546.
2.3.5
6.3.5

In Ringing tenor, treble, and second, there's a single bob the first time the whole Hunt comes before the bells.

In all Peals of Grandsire bob, where the first change is either a bob, or a dodge between the four hindmost bells, or else a double change between the four bells in the midst, it must be made at the back-stroke of the bells, otherwise the Peal would cut compass all the way, that is, every bell would come to lead at the back-stroke.

In the Eighteen-score changes before set down, there's a line drawn between the figures at every bob, the changes next below each line is a bob-change.

In the Seven-hundred and twenty changes of Grandsire bob, there are two single changes to be made. The first single change in any Peal is most commonly made as near the end of Eighteen-score changes (from the beginning) as may be, and 'tis the best way, and most convenient: For instance, sometimes it happens that one or more of those persons who do Ring this Peal, may be weary before they have Rang Eighteen-score changes, therefore upon notice given, the single change may be forborn, and then the bells will in course come round at the end of Eighteen-score changes, making a complete Peal; but after the first single change is made, the bells cannot be brought round in course, until the Seven-hundred and twenty are all made.

There is great variety in making the single changes in each Peal, which may be made at divers places (*viz.*)

The first single change in any Peal may be made the second time the whole Hunt leads after the last bob-change of the first or second double bobs, at which places the whole Hunt, half Hunt, and quarter Hunt, do alwayes lie together before the bells, and the single change is to be made in third and fourths places.

The first single change in any Peal may also be made the second time the whole Hunt leads after the first or second single bobs, at which place the whole Hunt and half Hunt do alwayes lie together before the bells; and the quarter Hunt lies behind, therefore it must be made between the two hindmost bells.

Or if the first bob in any Peal is a double bob, then the first single change may be made the second time the whole Hunt leads after the third double bob in that Peal, at which place the whole Hunt, half Hunt, and quarter Hunt do lie together before the bells, and the single is made in third and fourths places.

Or if the first bob in any Peal is a single bob, then the first single change may be made the second time the whole Hunt leads after the third single bob, where the whole Hunt and half Hunt do alwayes lie together before the bells, and the quarter Hunt behind, therefore the single change must be made behind.

The first single change in any Peal may also be made either at the first, second, or third single bobs, at which places the whole Hunt leads, the half Hunt lies in tenors place, and the quarter Hunt in fourths place, therefore it must be made behind.

The first single change in any Peal may also be made the next time the whole Hunt leads after the last bob-change of the first or second double bobs, at which place the whole Hunt, and quarter Hunt do always lie together before the bells, and the half Hunt in fourths place, therefore the single change must be made in third and fourths places. And in most Peals, the first single change may be made the next time the whole Hunt leads after the last bob-change of the third double bob; and in some Peals, the first single change may be made the second time the whole Hunt leads after the third double bob (notwithstanding the first bob-change in that Peal is a single bob, as in the Eighteen-score treble, second and fourth before set down) which falls out according as the first bob change happens to be made either nearer the beginning of the Peal, or farther from it; for in some Peals, the bells will come round in course the next time the whole Hunt leads after the last bob-change of the third double bob. And in many Peals, the bells will come round at the fore-stroke the second time the whole Hunt leads after the last bob-change of the third double bob, &c.

There are two single changes in every Seven-hundred and twenty, which are always made when the whole Hunt leads, the last single change in every Peal being constantly made just Eighteen-score changes from the first; for making of which, observe these Rules.

If the first single change (in any Peal) is made the second time the whole Hunt leads after a double bob, then the second single change must be made the second time the whole Hunt leads after the third double bob, accounting from the place where the first single change was made.

If the first single change in any Peal is made the second time the whole Hunt leads after a single bob, then the second single change must be made the second time the whole Hunt leads after the third single bob, accounting from the place where the first single change was made. Or if the first single change is made at a single bob, then the second single change must be made at the third single bob, accounting from the place where the first single change was made.

The second single change in every Peal must be made between those two bells, and in the same place where the first single change was made; and the whole Hunt, half Hunt, and quarter Hunt, will in course lie in the same places at the second single change, where they lay at the first: either the half Hunt, or quarter Hunt, are always one of the two bells which makes every single change. But there are many other ways to make the single changes, *viz.* to make them between the half Hunt, and quarter Hunt, at any dodge, where those two bells do dodge together next before a bob, &c. of which I need not say any thing more in this place, having already set down all those ways which are most easie and convenient to be practised.

In Ringing this Peal of Grandsire bob, (with any whole Hunt, half Hunt, and quarter Hunt) if there's no single change made within Eighteen-score changes from the beginning of the Peal, the bells will in course come round in their right places, just at the end of Eighteen-score changes.

In any Peal of Grandsire bob, where the first is a double change, and made at the back-stroke, the last change of the Peal (which brings the bells round in their right places) is a treble change, and made at the fore-stroke.

The Seven-hundred and twenty changes of Grandsire Bob may be Rang without making any single change therein, which way of Ringing it, is call'd *Grandsire Bob True*: that is, the changes are all true trebles and doubles without any single change therein. There are made two double changes (contrary to the course of all the double changes in the Peal) to supply the place of the two single changes, which two are called True changes; and to be made divers ways, and at several places. The first true change in any Peal may be made at the first, second, or third double bobs either at the first or second bob-change of each. At the first bob-change of any double bob it may be made, by moving the Bell in fourths place down under two Bells at once into the seconds place, and the two hindmost Bells must make a change at the same time: for Example, in the Eighteen-score of treble, second and fourth before set down, at the first bob-change of the first double Bob, the Bells stand thus, 143526. Now the true change is made, by moving the Bell which lies in fourths place down under two Bells at once into seconds place, and the two hindmost Bells are at the same time to make a change thus, 154362. At this place it may be made another way, by moving the hindmost Bell down under two Bells at once into the fourths place, and the two Bells in second and thirds places are at the same time to make a change thus, 134652. At the last Bob-change of each double Bob, it may also be made two ways; one of which, is to move the Bell in fourths down into the seconds place, and the two hindmost Bells at the same time to make a change, as I shewed you before: But the best and easiest way is to move the bell which lies in fourths place up over two bells at once into the tenors place, and the two bells in second and thirds places to make a change as at a bob: for instance, at the last bob-change of the first double bob in the Eighteen-score before set down, the figures stand thus, 143652. Now the bell in fourths place must be moved up behind, and the two bells in second and thirds places are to make a change, 134526. The second True change in every Peal must be made just Eighteen-score changes from the first, in making of which, these Rules are to be observed. If the first true change in any Peal is made at the first bob-change of a double bob, then the second true change must be made at the first bob-change of the third double bob, accounting from the place where the first true change is made, but not reckoning that for one of the three: or if the first true change is made at the last bob-change of a double bob, then the second true change must be made at the last bob-change of the third double bob, accounting from the place where the first true change was made, but not reckoning that for one of the three. And the second true change in every Peal must be made in the same manner and place as the first, the true and single changes in Grandsire bob, are both to one and the same effect (*i.e.*) to alter the course of the extream bells; for in making these changes, the whole hunt, half hunt, and quarter hunt are to continue their constant course without variation, neither of those 3 bells being any otherwise concerned therein, than at the change which should have been made, if the single or true change had been forborn.

There is another way to Ring this Peal of Grandsire Bob, by a course differing from the former. When the whole Hunt leads, the half Hunt lies in fifths place, and the quarter Hunt in fourths place, then the next change is a single bob; and when the whole Hunt leads, and the half Hunt lies in fifths place, and the quarter Hunt in thirds place, then the next

change is the first bob-change of a double bob; the bobs and dodge-changes herein are made in the same manner, as those in the former way: But the bobs herein are called by a Rule differing from the former, *viz.* when the whole Hunt and half Hunt do lie together before the bells, and the quarter Hunt (lying in fourths place) dodges with the bell in thirds place, then the second time the whole Hunt comes before the bells (from that place) there is made the first bob-change of a double bob, the second bob-change being made the next time the whole Hunt leads after. When the whole Hunt and half Hunt, do lie together before the bells, and the quarter Hunt (lying in fifths place) dodges with the bell in tenors place, then the second time the whole Hunt leads (from that place) is made a single bob.

There are two single changes in the Seven-hundred and twenty, the first single change in any Peal may be made at the first, second, or third single bobs, at which places it must be made between the 2 hindmost bells; or the first single change may be made the next time the whole Hunt leads after the first, second, or third single bobs, at which places 'tis always made between the two hindmost bells. The first single change may also be made the next time the whole Hunt leads after the last bob-change of the first, second, or third double bobs, where it must always be made in third and fourths places. But in some few Peals it happens, that the bells will come round at the fore-stroke the next time the whole Hunt leads after the third single bob, and also after the last bob-change of the third double bob, which falls out according as the first bob-change in each Peal is made, either nearer the beginning, or farther off.

The second single change (in every Peal) must be made Eighteen-score changes from the first, in making of which, these Rules must be observed.

If the first single change is made at a single bob, then the second single change must be made at the third single bob from the place where the first was made. Or if the first single change is made the next time the whole Hunt leads after a single bob, then the second single change must be made the next time the whole Hunt leads after the third single bob, accounting from the place where the first single change was made. And the same Rule is observed in making it after a double bob.

The second single change in every Peal must be made in the same place, and between those two bells which made the first single change: But (in Ringing this Peal) if you make no single change, the bells will in course come round at the end of Eighteen-score changes.

The way to begin several of these Peals, is as follows.

In Ringing treble, third, and fifth; and second, third, and fifth; and also third, fifth, and second; the first change is treble, and the next double, and so forward in the common course of trebles and doubles, until the first Bob in each comes to be made. In treble, second and third, the first changes are treble and double in the common course; and the second time the treble leads, there's a double Bob. In treble, tenor and second, the first changes are treble and double in the common course; and the second time the treble leads, there's a single Bob. In treble, second and fifth, the first change is a dodge between the four hindmost Bells; and the second time the treble leads, there's a single Bob. In second, fourth and tenor, the first change is made between the 4 Bells in the midst. In treble, second and fourth, the first change is a dodge behind; and the second time the treble leads, there's a double Bob.

Changes on eight Bells.

There are 40320 several changes on 8 bells, which to Ring it is altogether impossible; the greatest Peal that ever was Rang on 8 Bells, is 1680, being only a third part of the changes on seven Bells, which are to be Rang with a whole Hunt, half Hunt, quarter Hunt, half quarter Hunt (for so you may term it) and three extream Bells: But the most complete and musical Peal that ever was Rang on eight Bells, is Grandsire Bob, treble, second and fifth, Half-pulls, on 1.2.3.5.6.7. the fourth and the tenor lying behind every change, thus, 123567,48. which has of late been practised by the *Colledge-Youths*, and excellently well performed by them. Grandsire, and Tendring Six-score on eight Bells makes good Musick, 7.4.8. lying behind every change: And a Six-score (four extreams) on the six Bells in the midst, the treble leading all the way, and the tenor lying behind, making a change at first between the 4 and 5, and then proceeds forwards in the Six-score, making the second the whole Hunt, and the seventh the half Hunt, it makes excellent Musick; but after the Six-score changes are made, the fourth and fifth must change their places again to bring the Bells round.

35678,241
12357,864
12357,468
12357,648
12356,748
34567,218
45678,321
12368,574

The most musical Peals that are commonly Rang on eight Bells, are these Six-scores on five, the other three Bells lying behind every change: For example, the uppermost fig. are 35678,241. here the 35678, makes the Six-score changes, 3 the whole hunt, and 8 the half Hunt, or any others, and 241. strikes behind every change, in the same order as they now lie, and so of the rest. The three Bells which are to lie behind, must first be hunted up one after the other in order, before any of the Six-score changes are made. The Seven-score and four on the six middle Bells, the treble leading, and the tenor lying behind every change, makes good Musick.

Of Hanging Bells.

First, for the Stock, much need not be said, but of placing the Cannons or Crown of the Bell into it, which is called *Hanging of a Bell*, I shall speak something: First, find out whether the Cannons be upright and true, then raise the Bell

up by some Rope tyed to the Cannons, and so that the Bell hang level, which you may find, by applying a Plumet to the brim, then fasten a string to the Crown-staple within the Bell, then (a Plumet being tyed to the other end of the string) if the string hang in the midst between the two sides of the Bell whereon the Clapper should strike, the Crown-staple is cast into the Bell true: Now when you have hung the Bell, and let the Gudgeons in true by Keys (for therein consists the main point of the going of a Bell) then if the Clapper hang in the midst between the two striking sides, and the Stock stand upright, the Bell is well hung.

If a Bell have a longer stroke on the one side, than the other, truss up that side which hath the short stroke more, or let the other side down, and put a piece or two of Leather in, according to the stroke; but sometimes the fault of the stroke is in the Sally, which you may remedy, by tying the Fillet (or little Cord about the rim of the Wheel, which causeth the dancing of the Rope) nearer, or farther off the main Spoke; nearer makes a short stroke, farther off the Spoke, a long one.

And observe, that the trussing or taking up of a great Bell far into the Stock by a notch, makes the Bell go easier, and lie lighter at hand (that is) when it is set, for the farther the brim of the Bell is from the centre of gravity, the heavier it is: Now the centre of gravity is a supposed line drawn through the Stock from one Gudgeon to the other; but note, if you truss a Bell up, that the Crown-staple be much above the Gudgeons, you must fasten a false Eye to the Crown-staple, and to this false Eye hang the Clapper, otherwise it will not strike so freely: Now small Bells must be trussed up short, for else the Bell hanging low, and fetching a great Compass in the swing, and having but little Compass in the brim, the Clapper keeps along by the side of the Bell, and gives no blow at all; but being hung short, the Bell fetches a quick and short Compass, equal to the bigness of the brim, and the Clapper strikes well.

Now for the tempering of the Gudgeons, I leave it to the judgment of the Workman; but a word or two of the polishing of it. After it is filed, or turned exactly round, take two pieces of Oak, and oyl one side of each, and strew fine Sand thereon, and clap them in a Smiths Vice, with the round of the Gudgeon between, then turn it about, until you think it is sufficiently polished, then oyl the sides of the pieces of Oak wherein there is no Sand, and so clap them in a Vice, with the Gudgeon between, as before, then turn it round, and it will polish the Gudgeon wonderful smooth; and if the Brasses are likewise well polished, the Bell will go as well at the first, as ever: Now by the neglect of this, the roughness of the Gudgeon will wear the Brasses so unequally, that the Bell will never go smooth and stedly.

Now I would advise all Bell hangers to hang Bells with bolts of Iron to come from the Cannons through the Stock, and to fasten them with Keys at the top of the Stock, and not with plates nailed on the sides; for they are mighty inconvenient to fasten a bell that is loose in the Stock, or to alter the stroke.

As for the Rowle, let it not be without, nor within the hollow of the side of the Wheel; nor above, nor below the hollow at the bottom of the Wheel. Now the bigger a Wheel is, if the Frame will permit, the bell will go the better; when the wheel is new, nail Stays from the Stock to each Spoke, to keep it from warping.

'Tis very convenient (if the Frame will permit) to fasten a piece of Timber about half a foot long on the end of the main Spoke at the top of the Wheel (whereon the end of the bell-rope is fastned) with a notch on the end of it; so at the setting of the bell, the Rope will hit into that notch from the Rowle, and this will make the bell lie easier at hand when it is set, and flie better.

FINIS.

*** END OF THE PROJECT GUTENBERG EBOOK TINTINNALOGIA, OR, THE ART OF RINGING ***

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