



THE CENTRAL COUNCIL OF CHURCH
BELL RINGERS

UK Registered Charity No. 270036

Education Committee

Simulators and New Technology Day

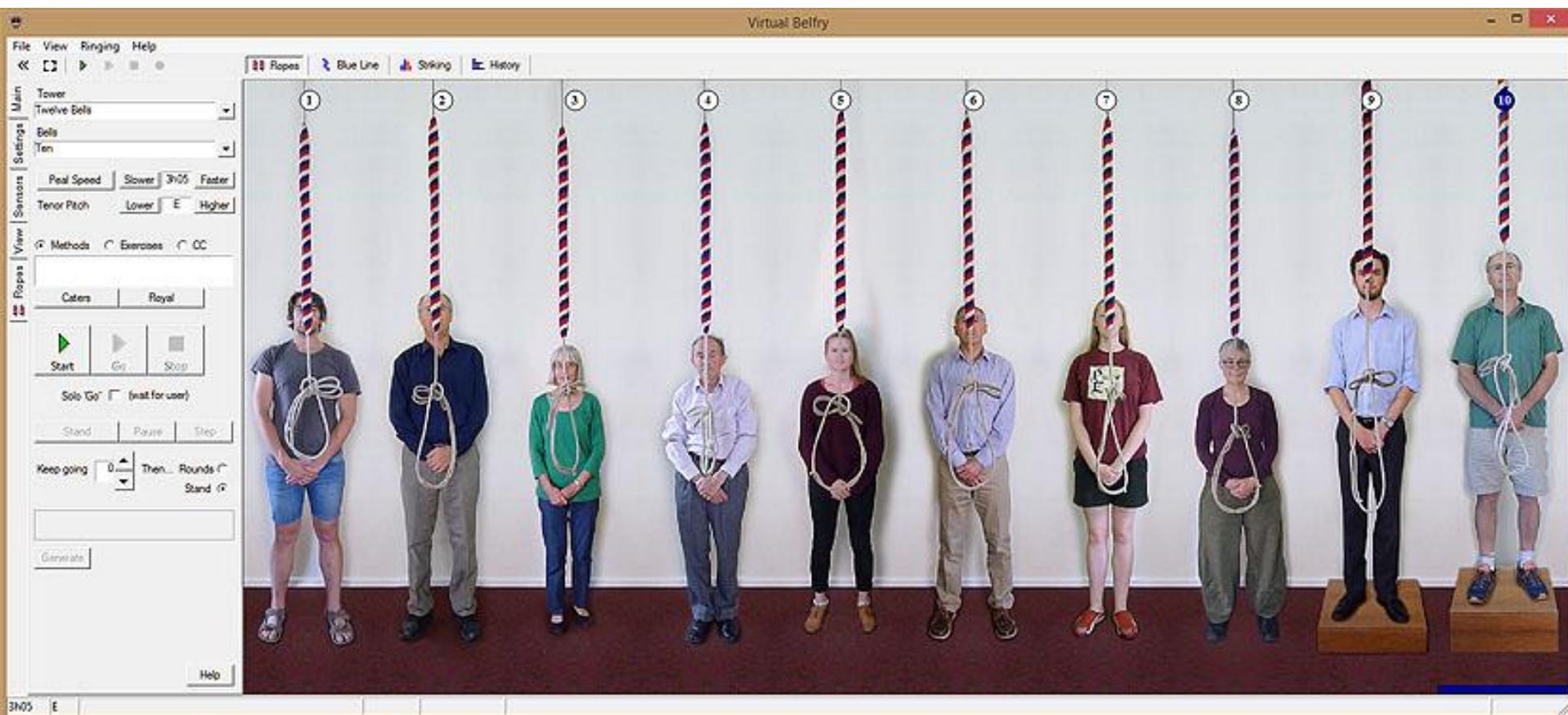
Software Presentation

- Background

- Many simulators lie gathering dust in the corner of belfries:
 - Ringing by ear alone can be quite difficult. People try and then give up
 - Few people have been trained to set the systems up and use them
 - Early technology was not 100% reliable
 - Someone keenly installs one, then moves on, and no-one else is knowledgeable enough to continue its use.

- Background

- There have been many advances in simulator technology in recent years
 - More reliable sensor systems
 - Addition of LtR learning exercises to help with early stages
 - Introduction of video (moving ropes) to help with teaching ropesight
 - Facility to measure striking accuracy of individuals, and whole band
 - Off the shelf dumb-bells to practice in the tower and at home



Virtual Belfry screenshot



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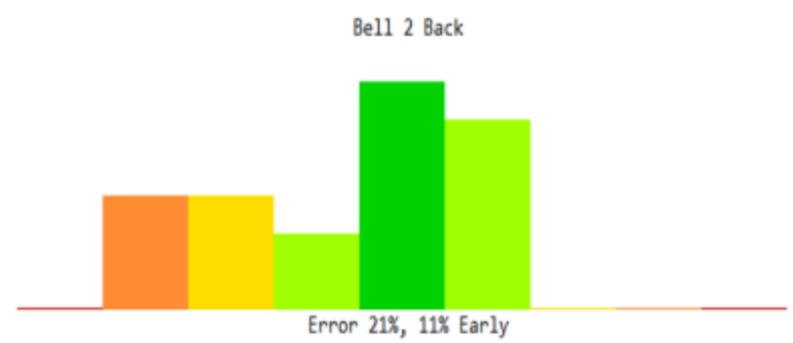
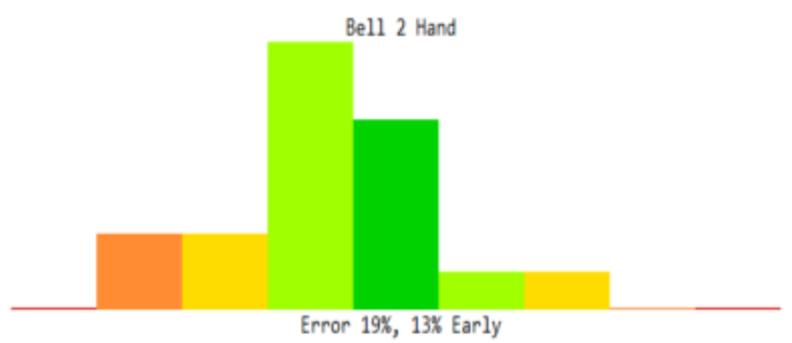
Teaching Rounds and Listening Skills



- I can't hear my bell?

- Some people have extreme difficulty picking out their bell, but very few people are totally tone deaf:
 - Try ringing fewer bells. Don't be afraid to start with three bells
 - Then increase one at a time as you become more comfortable
 - Slow the simulator down (6 hour peal speed!)
 - Count your place (one, two, three, four, five, six etc.) emphasising the bell that you are ringing. Clap this with your hands first
 - Practice at home - Press a key on the keyboard, or use a smartphone app

Video of Abel in use to practice striking rounds

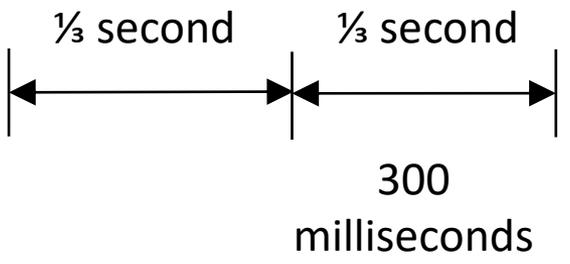


	H	1	2	3	4	5	6
0001	H	1					
0002	B	1	2				
0003	H	1		3			
0004	B	1	2	3	4		
0005	H	1		3	4	5	
0006	B	1	2	3	4	5	6
0007	H	1		3	4	5	6
0008	B	1	2	3	4	5	6
0009	H	1		3	4	5	6
0010	B	1	2	3	4	5	6
0011	H	1		3	4	5	6
0012	B	1	2	3	4	5	6
0013	H	1		3	4	5	6
0014	B	1	2	3	4	5	6
0015	H	1		3	4	5	6
0016	B	1	2	3	4	5	6
0017	H	1		3	4	5	6
0018	B	1	2	3	4	5	6
0019	H	1		3	4	5	6
0020	B	1	2	3	4	5	6
0021	H	1		3	4	5	6
0022	B	1	2	3	4	5	6
0023	H	1		3	4	5	6
0024	B	1	2	3	4	5	6
0025	H	1		3	4	5	6
0026	B	1	2	3	4	5	6
0027	H	1		3	4	5	6
0028	B	1	2	3	4	5	6

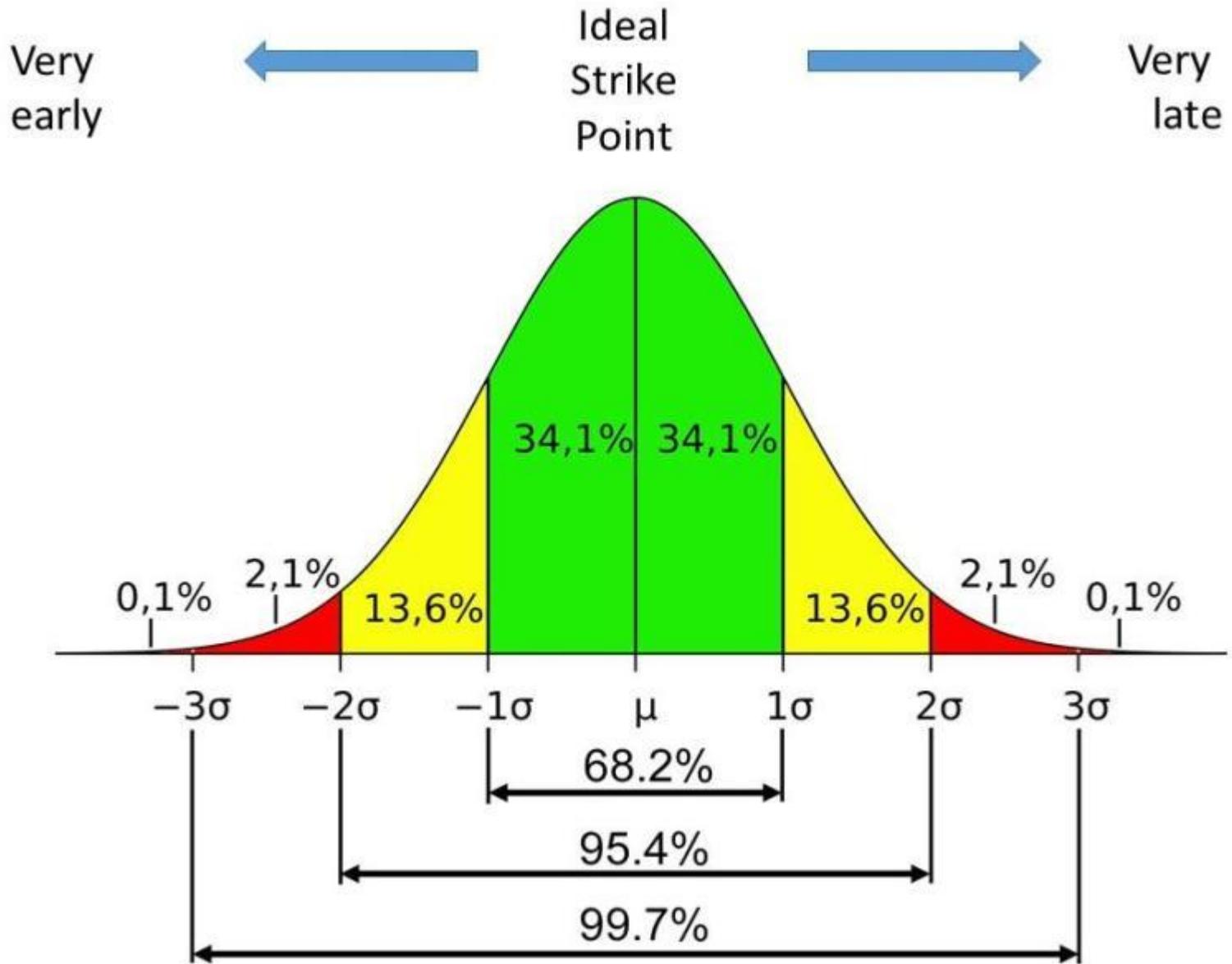
	NUM	NUM
0002	2	
0004	2	
0006	2	
0008	2	
0010	2	
0012	2	
0014	2	
0016	2	
0018	2	
0020	2	
0022	2	
0024	2	
0026	2	
0028	2	



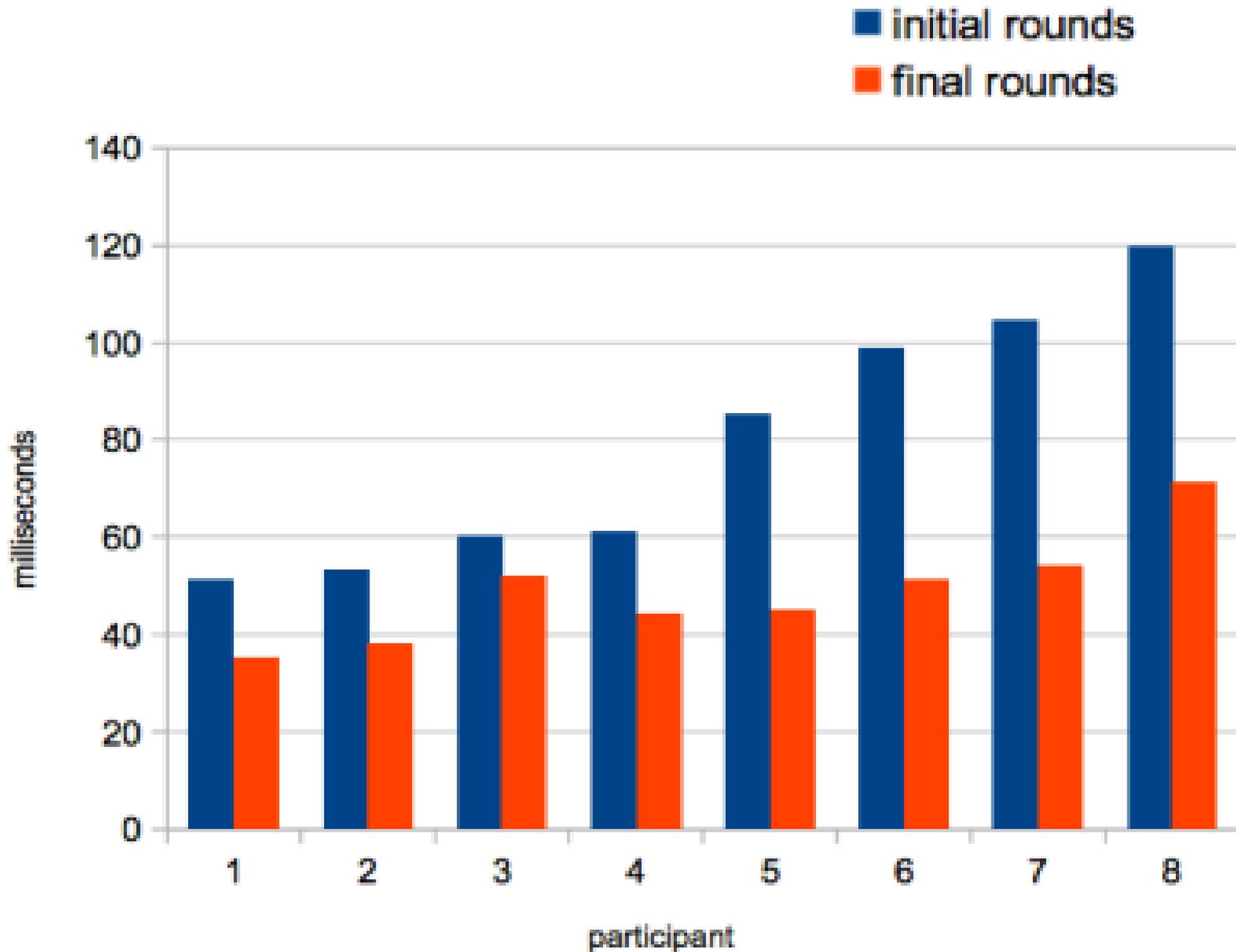
1 2 3 4 5 6 1



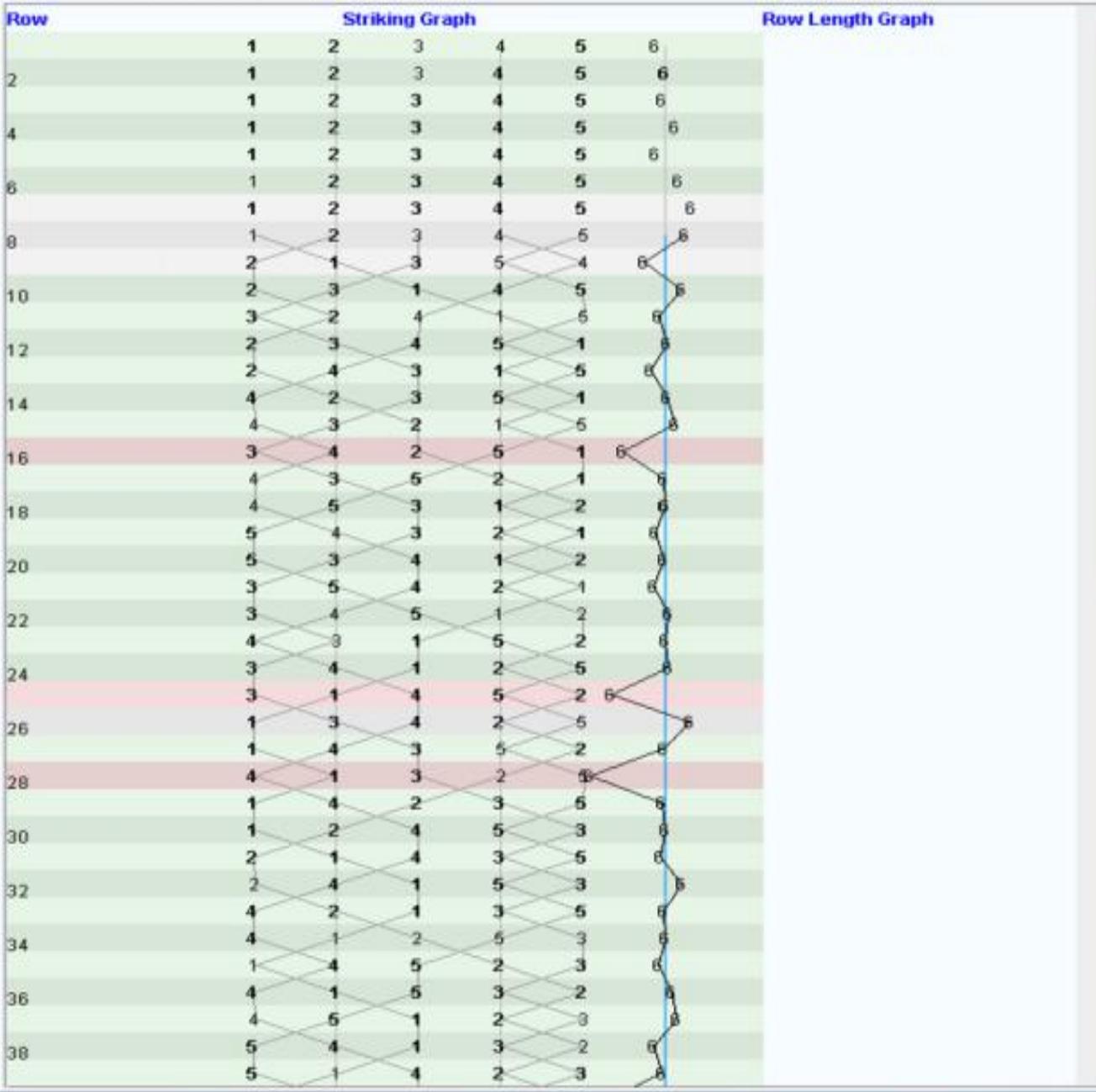
The gap between each bell in milliseconds



Variability – Normal distribution and standard deviation (σ)



Improvement in average error over 12 months at Orange, New South Wales



Striking Data
 File: 20061130015344.txt
 Format: Lowndes

Options
 In changes only Advanced View

Touch statistics

	Whole	Hand	Back
Striking RMSE	31ms	22ms	38ms
Discrete RMSE	28ms	19ms	34ms
Interval mean	310ms	309ms	312ms
Quickest row	4089ms	2205ms	1884ms
Slowest row	4107ms	2212ms	1902ms
Row length SD	157ms	1ms	2ms
Faults	5	98%	

Bell Statistics

Selected: 6

	Whole	Hand	Back
RMS Error	76ms	54ms	93ms
Std deviation	74ms	48ms	92ms
Av ms late	-18ms	-25ms	-11ms

Visualiser information

The Simple LAD Visualiser uses a Least Absolute Deviation regression line to estimate the correct strike times for each row. There can be discontinuities between rows.

Audio Controls

Playback speed

2x 1x 1/2 1/3 1/4

Scroll with playback Pitch: C

North & East District Striking Competition Results 2015

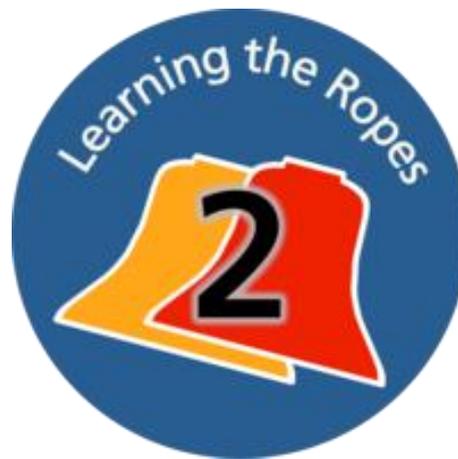
Jersey cup	Novices cup	Team	Tower	Faults	%
1 st	-	4	Aldgate A	75	92
2 nd	-	7	St Vedast, Foster Lane A	82	91
3 rd	-	5b	Stepney	84	91
4 th	-	6	Islington (Prebend St.)	155	84
5 th	-	8	St Vedast, Foster Lane B	178	81
6 th	1 st	3	Hackney	302	67
7 th	2 nd	1	Isle of Dogs	371	61
8 th	3 rd	2	Aldgate B	438	55



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Call changes & Kaleidoscope



Main
Tower
Adelaide St Peters

Settings
Bells
Six

Peal Speed
Slower 2h58 Faster

Tenor Pitch
Lower C Higher

View
 Methods Exercises CC

Ropes
Doubles Minor

Start Go Stop

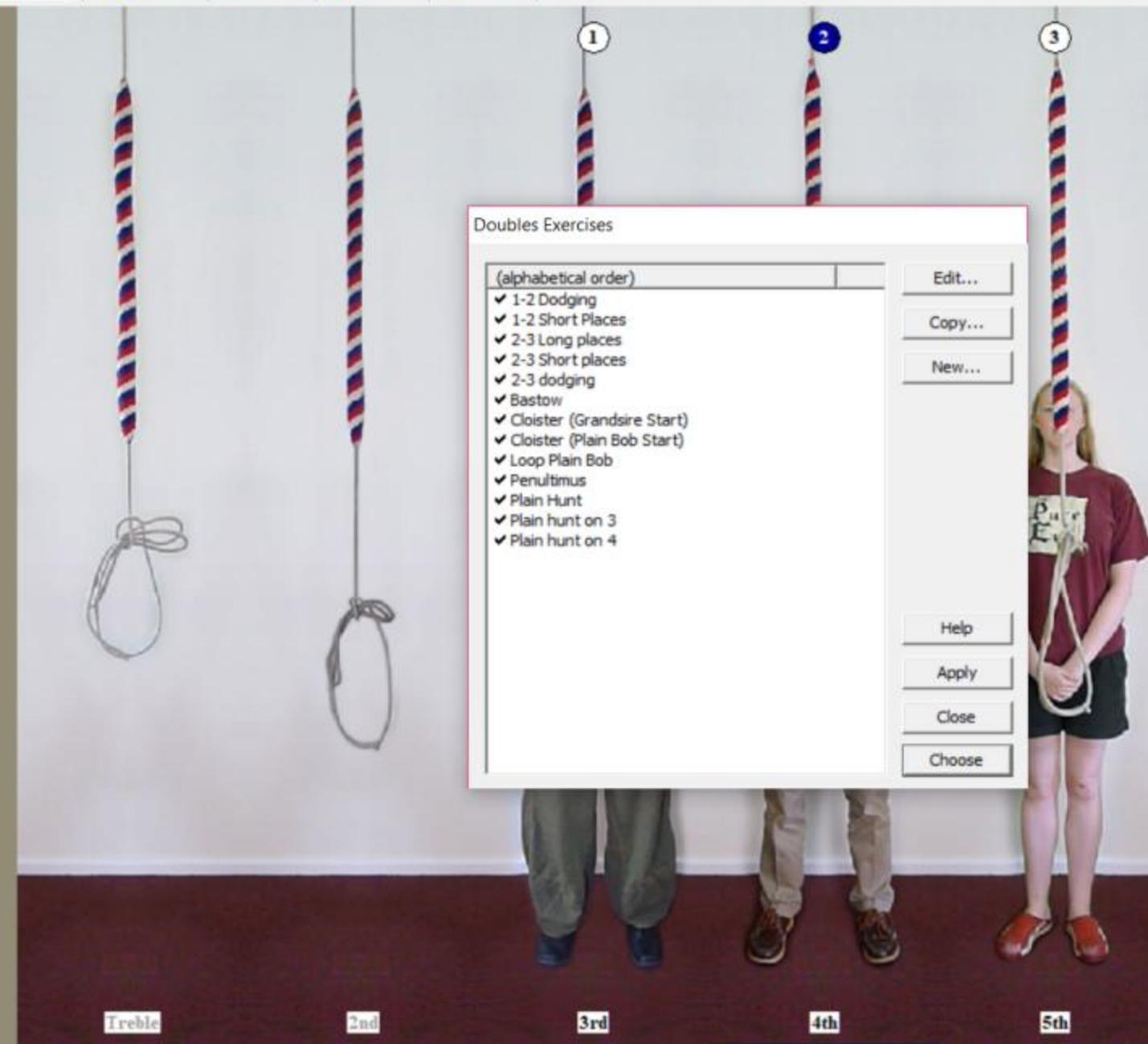
Solo 'Go' (wait for user)

Stand Pause Step

Keep going 4 Then... Rounds Stand

Generate

Help



Doubles Exercises

(alphabetical order)

- 1-2 Dodging
- 1-2 Short Places
- 2-3 Long places
- 2-3 Short places
- 2-3 dodging
- Bastow
- Cloister (Grandsire Start)
- Cloister (Plain Bob Start)
- Loop Plain Bob
- Penultimus
- Plain Hunt
- Plain hunt on 3
- Plain hunt on 4

Edit...
Copy...
New...
Help
Apply
Close
Choose

Bells

3:00 Peel time

Composition:

Plain Course

Start row:

123456

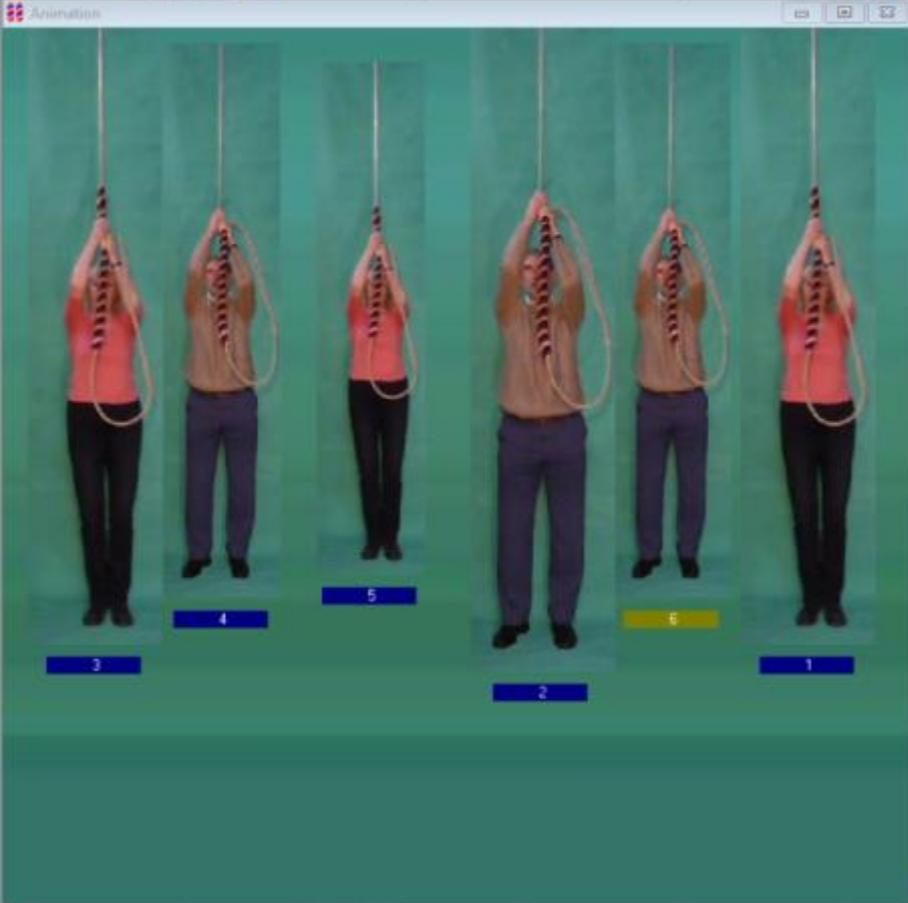
Next Method:

Ks 1-2 Places (plain hunt on two)

Bastow Doubles
Cloister Doubles
Grendshire Doubles
Ks 1-2 Places (plain hunt on two)
Ks 1-2 Places backstroke
Ks 2-3 Dodging
Ks 2-3 Long places
Ks 2-3 Long places backstroke
Ks 2-3 Short places
Ks 2-3 Short places backstroke
Ks 3-4 Dodging
Ks 3-4 Long places
Ks 3-4 Long places backstroke
Ks 3-4 Short places
Ks 3-4 Short places backstroke
Mexican wave (dodges)
Mexican wave (places)
One Step
Plain Bob Doubles
Plain Hunt on 2
Plain Hunt on 3
Plain Hunt on 4
Plain Hunt on 5
Reverse Hunt on 2
Reverse Hunt on 3
Reverse Hunt on 4
Reverse Hunt on 5



Start



Changes

BELTOWER - new file - Choose Method

Stage	Method Name	Delete	Touch Name	Delete
Doubles	Plan Hunt		Plan Course	
	Whole Pull Hunt			
	12 Long Places			
	12 Places			
	23 Long Places			
	23 Places			
	34 Long Places			
	34 Places			
	45 Long Places			
	45 Places			
	Mexican Wave			
	Mexican Wave & Reverse			
	12 Places Wrong			
	12 Dodging			
	23 Places Wrong			
	23 Dodging			
	34 Places Wrong			
	34 Dodging			
	45 Places Wrong			
	45 Dodging			
	12 Dodge and Long Places			
	45 Dodge and Long Places			
	12 Dodge and Place			
	45 Dodge and Place			
	12 Double Dodge Up+Down			
	45 Double Dodge Up+Down			
	45Places+23wrong			
	12Places+34Shunt			
	12+45LongPlaces			
	13Snap+45Dodge			
	12DodgePlace+45LongDouble			
	13Snap+45DodgeDodgeLe			

1 3 4 5 6

Press F5 to start ringing

The screenshot shows the 'Ringing Options' dialog box in a ringing software application. The background is a video of six ringers (numbered 1-6) holding their ropes. The dialog box has the following settings:

- Manual Call Changes:** Off, On
- Tenor Behind Doubles
- Non-conducted
- Call Changes:** Called Up, Called Down, Called by Place
- Handstroke Gap: 1.0
- Ringing Speed:** Number of Bells: 6, Peel Time: 03:00
- Whole pulls to AutoGo prompt: Off, AutoStart in sync
- Bell Keys:** Key up/down action: with Start:

Buttons for 'OK' and 'Cancel' are visible in the top right of the dialog box. A 'Start' button is located at the bottom center of the video area.

Call changes – Ringing Options

	<u>1 2 3 4 5 6</u>
H	1 3 2 4 5 6
B	1 3 2 4 5 6
H	1 3 2 4 5 6
B	1 3 2 4 5 6
H	1 2 3 4 5 6
B	1 2 3 4 5 6
H	1 2 3 4 5 6
B	<u>1 2 3 4 5 6</u>

Long places

	<u>1 2 3 4 5 6</u>
H	1 3 2 4 5 6
B	1 3 2 4 5 6
H	1 2 3 4 5 6
B	<u>1 2 3 4 5 6</u>

Short places

Kaleidoscope places – changing at handstroke

	<u>1 2 3 4 5 6</u>
H	1 3 2 4 5 6
B	1 2 3 4 5 6
H	1 3 2 4 5 6
B	1 2 3 4 5 6
H	1 3 2 4 5 6
B	1 2 3 4 5 6
	etc.

Dodging 2-3

	<u>1 2 3 4 5 6</u>
H	1 2 4 3 5 6
B	1 2 3 4 5 6
H	1 2 4 3 5 6
B	1 2 3 4 5 6
H	1 2 4 3 5 6
B	1 2 3 4 5 6
	etc.

Dodging 3-4

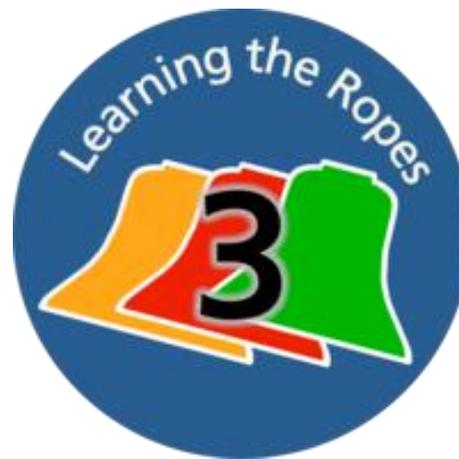
Kaleidoscope places – changing on handstroke and backstroke

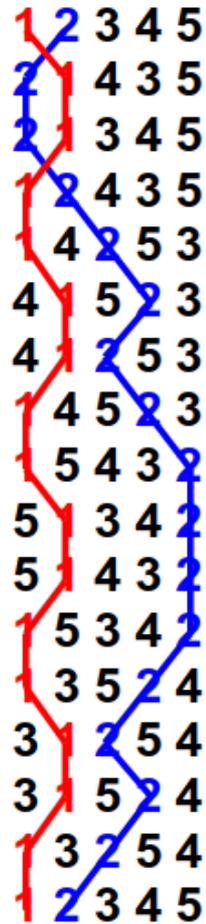


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Steps to Plain Hunting



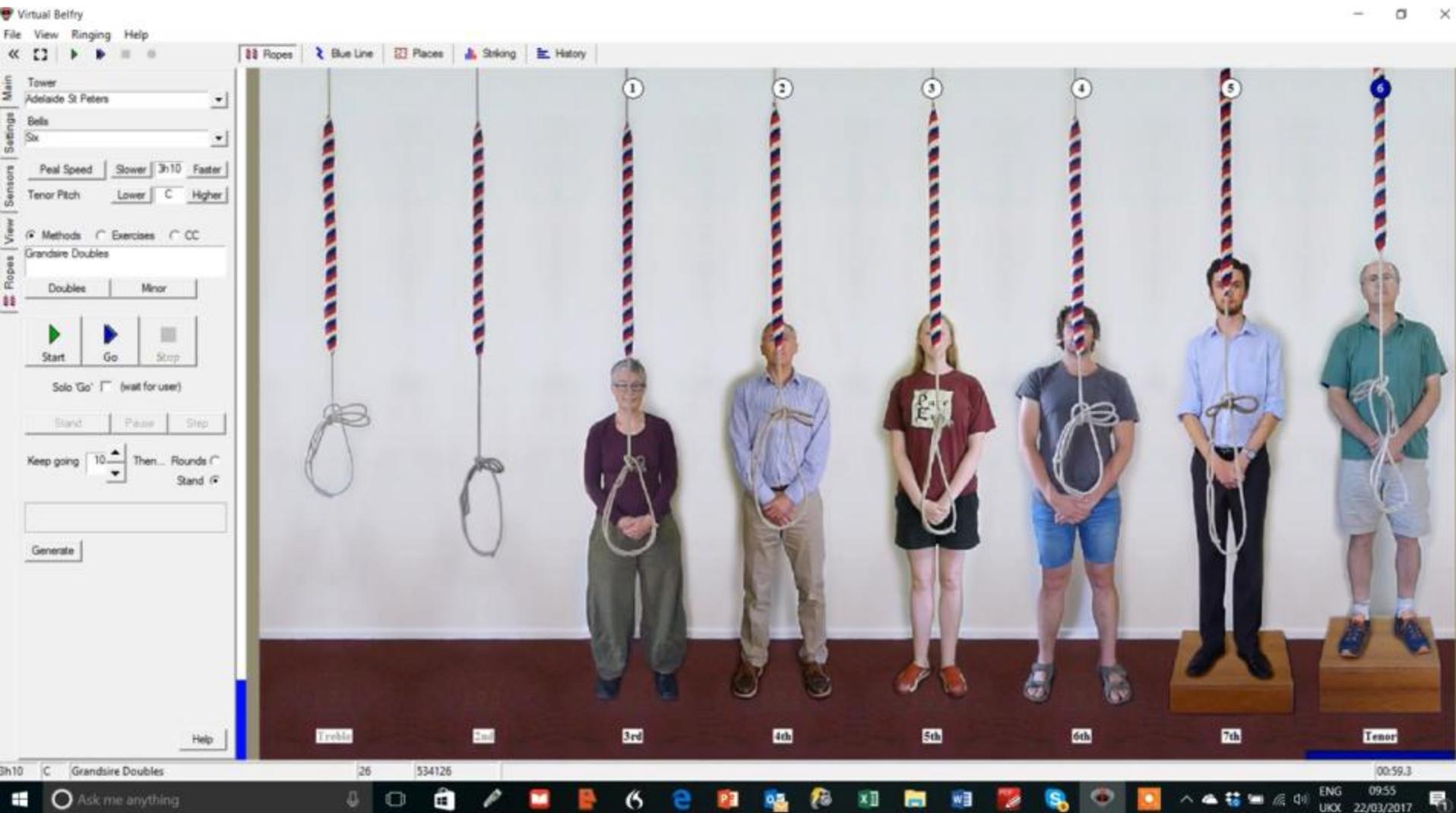


Bastow



Cloister

Bastow and Cloister, plain hunting on two and three, starting to introduce ropesight



Ropesight Flashes in Virtual Belfry (for tenor covering)

Making better use of teachers

- One teacher can teach two new ringers at a time, rather than needing six experienced helpers
 - Easier to arrange sessions
 - Can hold more frequent sessions
 - More rope time in each session
 - Pupils not embarrassed by mistakes
 - With more than one 'workstation' ringers can practice different things
 - Can even get simulator to 'fill in' for missing ringers
 - BUT, need a mix of practice with real ringers and simulator



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And Finally!

ART Simulator Awareness Workshop

Teaching with Simulators Book

Ringing Simulator Users and Suppliers Facebook Group

You-tube videos and other material on ART website

Webinars

Can you help?