

## VISIT TO UPTON HALL

11th AUGUST

The 11th of August saw the branch visit to Upton Hall Organised by Ron Rose.



A full report with more pictures will be in next month's newsletter.

### Lift to meetings

"The branch has a member living in South Norwood that is unable to travel to the meetings. Is there anyone near or passing through that could pick him up and return him home?"

Would they please contact Alan White on 018 8374 4346 to arrange this."

Free advertising for branch members

Contact Bill 01543506195



Est 1858

South London Branch

British Horological Institute

Newsletter No. 533/4 August/September 2023

Meetings are held on the 1st Thursday of each month

At The White Hart Barn (Godstone Village Hall)

Godstone Surrey RH9 8DU at 7.30 p.m. for 8 p.m.

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ISSUE

NEXT MEETING

August Meeting

July Meeting

Wanted

John Ward  
Clock course

Sid Lines  
Taps & Dies

Starting a  
business

Upton Hall

Lift Required

Free advertising

[www.slbbhi.co.uk](http://www.slbbhi.co.uk)

"There's never enough time to do it right, but there's always enough time to do it over". *Jack Bergman*

### NEXT MEETING

7th September 2023

The Beresford Hutchinson Memorial Lecture

"The Great Clock of Westminster"

Big Ben.

Keith Scobie-Youngs FBHI ACR

For this year's Beresford Hutchinson Lecture, we welcome back Keith Scobie-Youngs, joint founder of the Cumbria Clock Company. When last with us, Philip Whyte said there was a rumour of him disappearing into the Palaces of Westminster with a large toolbox.

The Cumbria Clock Company Ltd. Was established in 1990 and is situated in the small village, of Dacre in the Lake District National Park not far from the picturesque Lake Ullswater. From this base the whole country is covered. They are responsible for the annual maintenance of 1,000 Church clocks all over the UK. From the smallest church or village clock to the magnificent clocks at Salisbury cathedral, Hampton Court Palace, the Royal Liver Building, Liverpool. Recently the business has expanded, now employing 22 staff including the office team, workshop conservators and external horological engineers.

Continued

Keith will be giving us an insight into the extensive conservation work, carried out to the Great Clock during the Elizabeth Tower project. Covering all aspects, including the removal conservation and reinstatement of this world-famous clock.

Keith studied at the Birmingham School of Horology, now part of the Birmingham University in the Jewellery Quarter. He is Senior Warden of the Worshipful Company of Clockmakers, Director of the Antiquarian Horological Society, Director of the British Watch and Clockmakers Guild, Fellow of the BHI and ICON accredited.

## LAST MONTH'S MEETING

3rd AUGUST

The advantages of coupling the latest technology with the skills exercised by horologists were on show during the branch's "Show and Tell" meeting and social evening.

Members were invited to take along projects on which they were working, as well as non-horological items of interest – and the ways in which technology could be utilised became a clear theme.

CNC – computer numerical control – was on display in two major exhibits.

One was a home-produced bench-top gearwheel cutting machine from workshop tutor and clock and watch restoration specialist Antonio Da Silva, who was aided by Alan White.

The other was a four-axis cutter grinder – the AutoNorv – devised and made by branch secretary Norvin Simpson for his firm, All Seasons Tool Hire, and used to sharpen the cutters on stump-grinding tools his firm lets out.

Both devices were capable of performing their functions automatically once the relevant parameters were fed into their controlling computer programmes.

## Some thoughts on starting your own business

There are three parts to setting up the finances for your business.

The first is running costs., The second is salary., The third is profit.

Running cost is probably the most time consuming to work out, but without doing this you will not end up charging the correct fee for your work.

To set up this element you need to collate all your expenses for the year.

You should include the following: -

Rates, water rates, sewage, council tax, heating and lighting costs, maintenance on your property, cost of running transport, i.e. car tax, fuel maintenance and depreciation of value so that you can purchase another in the future. Food, clothing, entertainment. Tools and machinery. Holidays. Income tax.

Basically, the cost of running your life.

Having collated this information divide the total by the hours you work, this will give you a base cost for your time and is the minimum you need per hour for costing work.

**If you have included everything this is also your basic salary.**

Example Total expenses for year say £38000

Hours worked say 37.5 per week for 48 weeks allowing for holidays. Gives you 1800 hours. Cost per hour £21.11.

The final part is profit, in normal business practice a company cost consists of one third running cost for the business one third salary and one third profit.

So the figure of £22.11 covers the first two parts of running a business i.e. two thirds.

Add one third for profit gives you a final cost of running your business of £31.66 per hour.

You may feel that one third profit is high but this is what most companies work on so.

10% will give you £24.32, 15% £25.42, 20% £26.53,

25% £27.64, 30% £28.74

Have Fun

Anon

to make the screws and a bottle of wi.....'no'.....oil. The subject of modern screws was covered, but we soon returned to the mystery thread. We found the way to count the threads per inch (TPI) in the plate. Sid has made a set of hardened and tempered smooth (blunt) type tapered taps which are sufficiently accurate to measure the diameter required to permit the making of the tap. We learned it was also possible by measuring the pitch, depth, core, and then checking tables the secretive thread could be found.

From the information we now have we can make the tap required. Sid showed us two old tools, one a cutting die and the other a swaging die. Both may be used. The swaging tool expands the thread, so allowance for this must be considered. When you have cut the correct thread on the steel bar, it is time to consider the number of cutting edges you want: to, three or four. This will depend on the amount of work and hardness of materials envisaged. With the file and an oil stone you will now have tapered and honed the cutting edges with a slight clearance away from the cutting edge. It is now time to harden and temper your tap and finish off by filing a flat to take the tap wrench. This just left the making of screws in brass and steel to fit our thread which now is no longer a mystery.

Thanks to Sid's excellent and patient tutelage given with humour, it was a fun day where we were taught much from a very knowledgeable tutor.

Michael McDonnell



Antonio Da Silva's wheel cutter.  
Picture: Courtesy of Mike Dodd

Mr Da Silva's gear-wheel cutter was developed with a creative mixture of parts. The base was the cross-slide from a Chinese-made milling machine, while the two main aluminium vertical posts were machined in Portugal by a friend of his who owns an engineering company.

The workpiece itself is held in an Arceuro Trade ER20 collet holder on a ground shaft, while the vertical shaft was taken from a Myford lathe.

The device, which is powered by hybrid Stepper motors driven by a B-Plus Stepper Motor Driver Board, is controlled by a CNC program written by Australia-based Rex Swensen.

Mr White, who helped design and build the machine, said that in fully automatic operation, once the parameters were fed into the program, the machine would take about half-an-hour to cut a 60-tooth wheel. It was also capable of cutting pinions.

The device cost a total of about £350.00 – some parts were salvaged or cannibalised from other machines - and took about 100 hours to design, assemble and complete, he added.

In comparison, a second-hand wheel-cutting machine might be obtained for about £1,200 or one would have to spend somewhere in the region of £16,000 for a machine from Swiss manufacturer Schaublin.

Continued



Branch member  
Peter Stonebridge admires the  
AutoNorv  
Picture: Courtesy of Trevor Keast

The AutoNorv, which Mr Simpson spent about 20 months devising, designing and making, at a cost of about £1,000, is used to sharpen the eight finger teeth cutters used in each of the nine stump-grinding tools his firm hires out.

The stump-grinders, he said, were used virtually every day and the cutters fitted in them had to be sharpened every time they were hired out.

“I used to do it by hand, which was repetitive and took a little time. But with this machine I can just put a tool in and the machine does the work for me,” he said.

So far, he said, he had used the machine to sharpen the grinding tools more than 6,000 times – and as he took just over two minutes to sharp-

en each cutter, meant that the machine had saved him some 200 hours of repetitive sharpening work, because all he had to do was

insert the tool and switch it on. At busy times the firm got through 200 of the cutting teeth each week.

The design for the machine – a four-axis CNC cutter grinder and its components were drawn on Freecad.

The machine itself is controlled with G-Code running on Mach3, a popular CNC control software, and connected to the computer via a USB motion controller.

## New John Ward Clock Course

John Ward proposes to run a dial clock course over six weekends during October/ November/December, January. This course will be slightly different to previous ones in that we will not all be making identical clocks. There will be an element of clock case design to fit available movements.

He has available movements with different pendulum lengths, dials and bezels of different diameters, enabling the course members to make smaller wall clocks, drop dial clocks, some with visible pendulums etc.

Participants will also be able to use their own movements if suitable.

If you would like to book a place on the course please contact Trevor Keast on 07507-142-704.

A tentative set of dates are as follows:

Oct. 7th, 21st, Nov. 18th, Dec. 9th, Jan. 6th, 20th.

Any queries about the course speak to John Ward.

## THE MAKING OF TAPS AND SCREWS

### With SID LINES

A small group of us gathered with Sid Lines to learn the skills of identifying a thread and making a suitable screw to match the original thread. Sid considers it most important when a screw on a classic clock is missing or very damaged, that the historically correct replacement is used. To that end this training course was developed.

We were provided with a bag containing our test piece which had a thread cut into a square of brass. Each student had a different thread to identify and eventually make a matching tap and screw.

Included in the bag was a thread gauge, bars of material with which

From an exhibition at the Science Museum in his Ford Fiesta. Robert was well versed in recounting creation after creation as Rolands clocks became more and more complicated and was able to give us an insight as to how he was such a prolific maker. Parts often scavenged from old movements would be utilised in the construction of clocks, and for the making of sculptures, and the animated figures that Roland went on to make for his films. Robert was to say that often Roland would find the glass dome first, then design the clock to go underneath it. Throughout the 1990s the clocks became more and more ambitious with further complications and six month, or year duration. Now he was signing all his clocks, Jarvis Hastings, he was also senior tutor in drawing at Brighton Polytechnic, which became Brighton University. Rolands chief influencers in the design of his clocks were Antide Janvier, James Ferguson, Philipp Matthaus Hahn, Zacharie Raingo.

In 2017, Bonhams, held an auction with the more complicated astronomical clocks, a fine month going one with perpetual calendar has ended up in the Worshipful Company of Clockmakers gallery at the Science Museum. Robert and Johan ten Hoeve were responsible for the conservation of this complex complicated clock before its installation in the gallery. Robert kindly took us through many photographs detailing the complexity of the Astronomical dial and the movement.

We thanked him in the customary way with a bottle of clock oil.

Duncan Greig

## WANTED.

Do you have one of these that you no longer use and are willing to sell?

If so please contact Gary on 07963491623 or garythwaites9@gmail.com.



The AutoNorv - Inside the box. Picture: Courtesy of Mike Dodd

Two sensors in the device test the cutters - there is a micro switch to check for new or old cutters and an optical sensor to measure cutter wear. The cutters are honed on two three-phase inverter-controlled grinding motors, one of which has a coarse aluminium oxide wheel for grinding the steel backing, while the other has a diamond wheel for grinding the tungsten carbide tip. Each wheel also has dust extraction, which is switched on and off with solid state relays.

Another application of technology was shown by member Clive Steer, who demonstrated a servo-

controlled brushless DC electric motor mounted on a specially made stand to drive a watchmaker's lathe.

The motor, Mr Steer said, was extremely powerful, despite being extremely small compared to the motors usually used to power such lathes, and capable of maintaining the same rate of RPM even when under a considerable load.

Another major advantage was that it was silent in operation meaning that operating a watchmaker's lathe would no longer be accompanied by the whining and rattling noises usually associated with such work.

Also among the interesting and varied items shown by members at the session was the mechanical clock which once graced the outside wall of the offices of manufacturers Thwaites and Reed in Clerkenwell, central London.

Thwaites and Reed, which was founded in 1740, is still a going concern, is now based in Rottingdean, Brighton. The clock in

question, however, graced the outside wall on the front of its former base in 15 Bowling Green Lane, Clerkenwell, in the centre of the East End, from about 1930 until the Second World War.

Clerkenwell was a major centre for the English watch and clock-making industry, but suffered a sharp decline in its fortunes when William Pitt the Younger, the then Prime Minister, introduced the Duties on Clocks and Watches Act 1797.

The Act levied a tax of 10 shillings (50p) – about £80.50 now – which was the equivalent of three days' wages for a skilled tradesman, on gold watches, with silver and other metal watches at being taxed at 2s 6d (12.5p), the equivalent of £20 in modern-day purchasing power.

Watch and clock-makers and dealers had had to buy an annual licence at the cost of 2s 6d if they were in London and 1s (5p) outside the capital.

The tax was in force for only 13 months before it was repealed because of the devastating effect it was having on the industry – but by that time the damage was done, with demand for clocks and watches falling through the floor, output dropping by half, and thousands of skilled workers either leaving the industry for other occupations, or emigrating.

The Thwaites and Reed clock, designed in 1930 by Frank Ainscough Buggins, was removed from the Clerkenwell site in 1978 and regarded as lost until it turned up on auction and sales website eBay, bearing another company's name, two years ago, since when its restoration has been a major project by branch members.

Plans to mount the restored and refurbished clock on the front wall at Soper Hall, home of the branch's workshop, are currently in abeyance while the local authority considers the application, which will involve mounting a stout steel framework on the building to support the weight of the device.

Mike Dodd

## July Meeting

Robert Wren, FBHI.

Roland Jarvis BSc. FBHI.

“I'm not working, I'm playing”,  
Artist and Clockmaker 1926-2016.

His clocks and the conservation of his month

Astronomical Regulator with Planetarium.

Roland was born in Hull but spent his early life in France, and by the age of 7 was enthusiastically making models from a gifted Meccano set. By 1951 he had trained at Kings College London, then entered the military as an engineer responsible for the radar workshop. A chance visit to an art exhibition in 1954, took Roland on another path, the world of art. He studied at Chelsea School of Art and was trained by, amongst others, Henry Moore and Ceri Richards. He was awarded a French government grant and not surprisingly the Cubist and Surrealist movements had a great influence on him. He did however say that if it was not for his grounding in engineering, he could not do the art he was famous for. In 1960, a dial clock re-sparked his interest of engineering in clocks, and by 1972, with basic hand tools, he had created his first clock signed, SIVRAJ LONDRA. Basing the design on a simplified Edwardian longcase, the upper part of the clock with an Orrery, of the sun, earth, and the moon. A fire in his London studio in the early seventies, meant Roland moved to Hastings, eventually moving into an old, converted chapel. This gave him the high spaces and light for his artwork which was conducted mostly in the summer months, leaving the winter for horology, in his smaller and warmer workshop, where interestingly he also had his bed. 1974, he now has a lathe and pursued making more complicated clocks. He inspirationally made punches to create the stars, in his planispheres, from rods, cut like pinions. Robert got to know Roland from the visits he made to his shop, from 1985 till 1995. Robert even recounting the “Happy Days” of transporting Roland and one of his clocks, home