December 2020

Crosscut

◄ **Dinosaurs by Richard**

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Next Turners Meeting on **Monday, the 7th December 2020** from 18h00 at **Made in Workshop** – End grain finishing on spindle turnings using the skew and spindle gouge. Use of the bedan and dedicated shear scrapers will be demonstrated. Bring tools to sell / swap. Free Bockwurst rolls. **Wood of the Month** – Zambezi Teak.

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New Year - Turners Meeting on **Monday, the 11th January 2021** from 18h00 at **Made in Workshop** – TBA

Next General Meeting on **Wednesday, the 9th December 2020** from 18h00 at **Made in Workshop**. – Michael Minassian will show progress on the refinishing he explained at the November 2020 meeting. Tool sell /. swap; Quiz and bring and braai.

New Year - General Meeting on **Wednesday, the 13th January 2021** from 18h00 at **Made in Workshop**. – Demo on spray painting by Morells (a paint supplier in Strydom Park)

News

Turners meeting. Monday, the 2nd November 2020. Steven Barrett and John Speedy showed how to make a couple of Christmas ornaments on the lathe. Steven made a Christmas tree and John made a Father Christmas to hang on the tree.

Main Club meeting. Wednesday, 11th November 2020. Furniture restoration – Michael Minassian spoke about restoring old finishes without ruining the aged appearance (Patina). Trevor Pope spoke about augers and braces, giving some history, principles of operation and sharpening. These are not used much these days, but with care can work very well and are sometimes better than modern alternatives. Some additional information from the talk is given in an article below.

Hobby-X 2021

will take place at the Kyalami Convention Centre from the 29th April to the 02nd May 2021. WWA will have a stand as before.

Hardware Centre Demos – The woodturners will be demonstrating at the Hardware Centre Open day on the morning of Saturday, the 28th November 2020.

Woodworking 101 – 7th Dec 2020 at 9h00 – Finishing work will be done on the dovetailed boxes glued up last month. No class in January 2021. Topics for February and March 2021 will be announced.

Toymakers end of year braai and raffle

To celebrate the end of 2020, about 1500 toys were donated to three charities, Baby Moses, Little Eden and Kids Haven. Every year, the creativity of the toy makers suprises us, with clever new ideas being shown off. The stand-out contribution this year was from Pano's wife, Gita who crocheted about 600 soft toys, many of which are shown in the pictures.

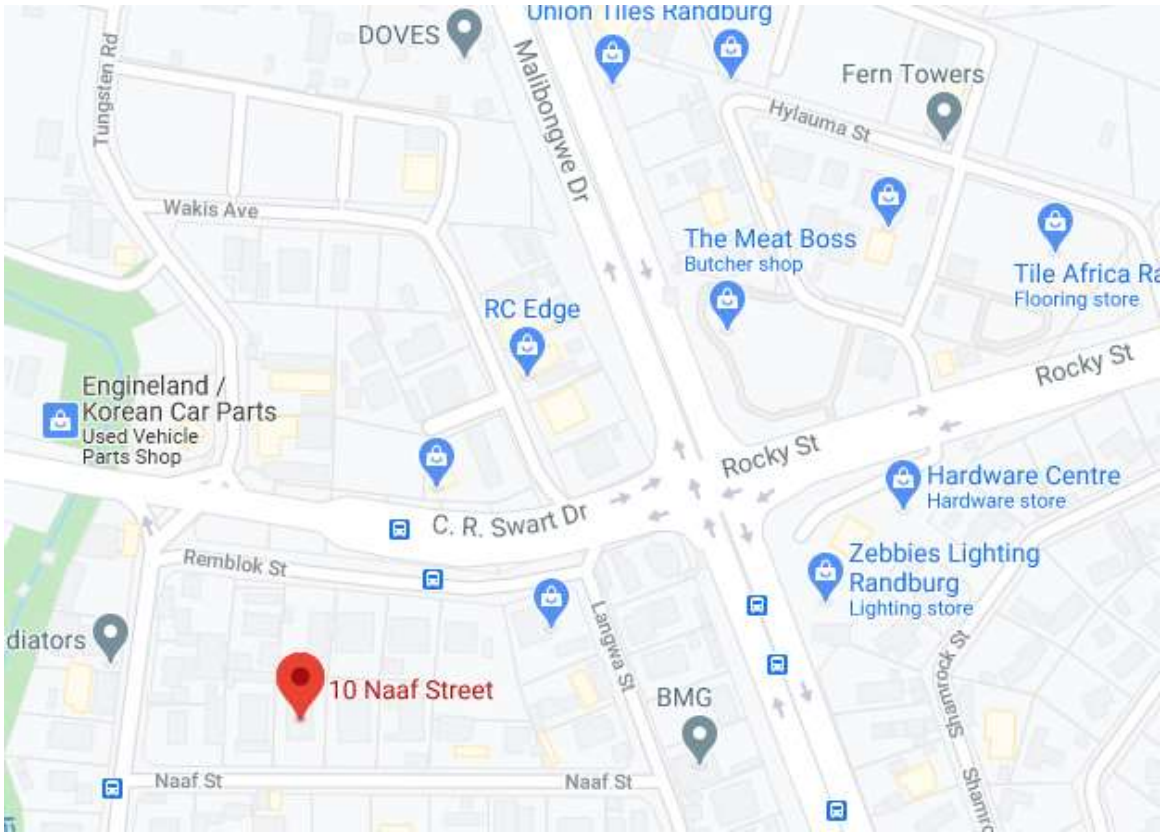
Schedule for Regular Events:

Meetings – regular meetings in addition to those given above

1. First Saturday of the month – Bobby Bezuidenhout – Woodwork 101 for beginners. Contact Bobby on 083 873 3872 or bobbymel109@gmail.com
2. Second Saturday of month - Herman – all things turning related – 083 631 0501 hermanpotgieteresq AT gmail.com

This list is subject to change, so please consult your Crosscut each month.

All WWA club activities now take place at the **Made in Workshop** premises in Strydom Park, Randburg. The Malibongwe off-ramp from the N1 highway is perhaps the easiest way to access Strydom Park. Most of the WWA members know where Hardware Centre is – **Made in Workshop** is just 600m to the West, at 10 Naaf Street, Strydom Park. The picture from Google maps shows the front of the building. The map below shows the location. You can see it is just a stone's throw from Hardware Centre.

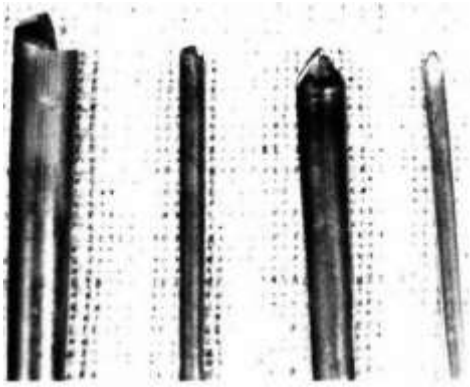


MEMBERSHIP

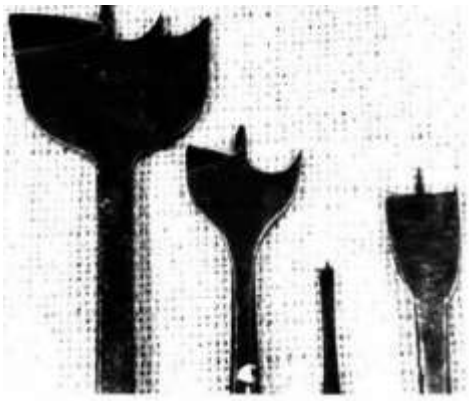
Access to the new premises and the preferential rates at **Made in Workshop** are subject to being a paid-up member of the WWA. This will be strictly enforced, so please, check that you have renewed for 2020/2021. The 2020/2021 membership cards are now available from the Treasurer for paid-up members.

Bits & Braces

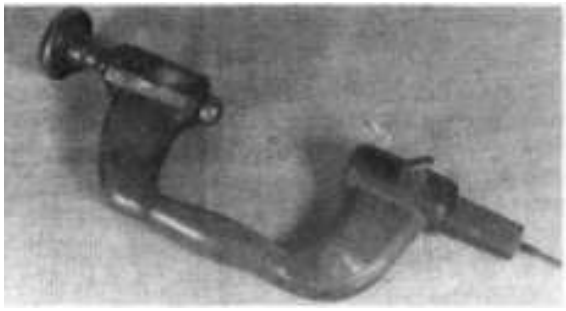
Trevor Pope



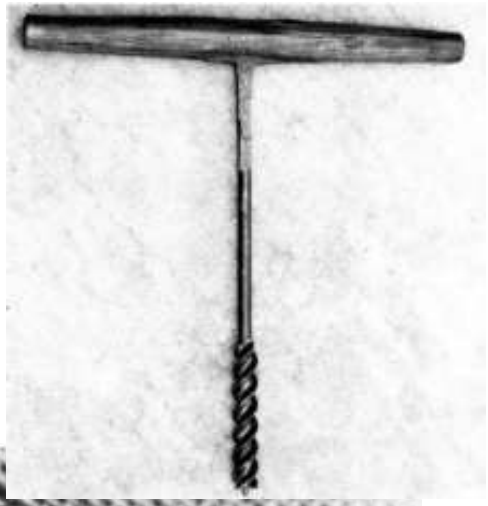
Bits are ancient boring tools that were once made by blacksmiths to simple designs. [Eugene L. Klingler – *Tools for the Brace* - EAIA Chronicle – Vol45 – 1, P40]



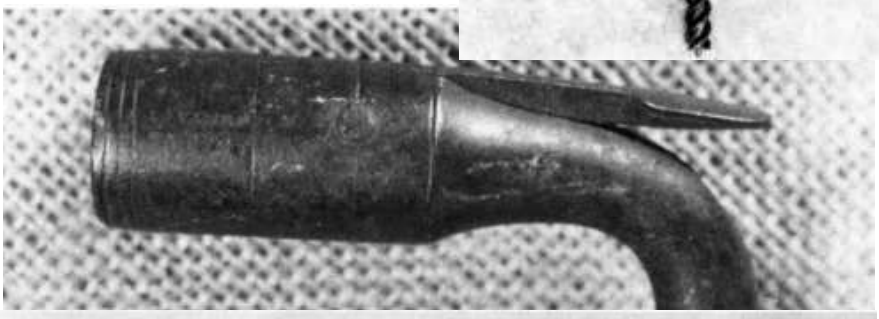
Basic designs included nose and spoon bits, shell bits and centre bits.
The back ends of the bits were tapered and simply embedded into the front of the brace.

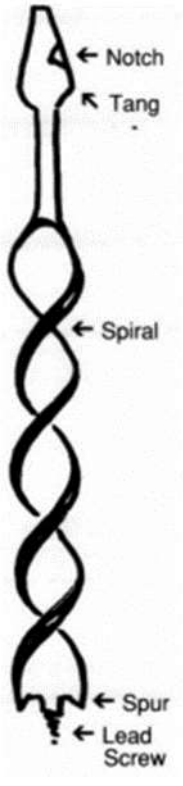


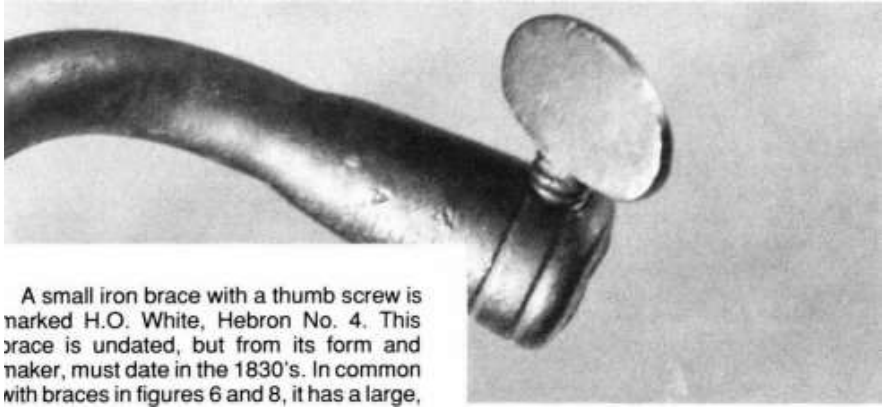
The bits could be turned into the work in a number of ways, such as by using a cross handle and but it was not until about the 14th Century, when the first braces (see left) appeared.



The characteristic tapered tang was fitted into the brace using a lever operated catch that engaged a notch in the tang or a thumb screw. Bits and chucks were not standardised across manufacturers, so not all bits fitted into all braces.





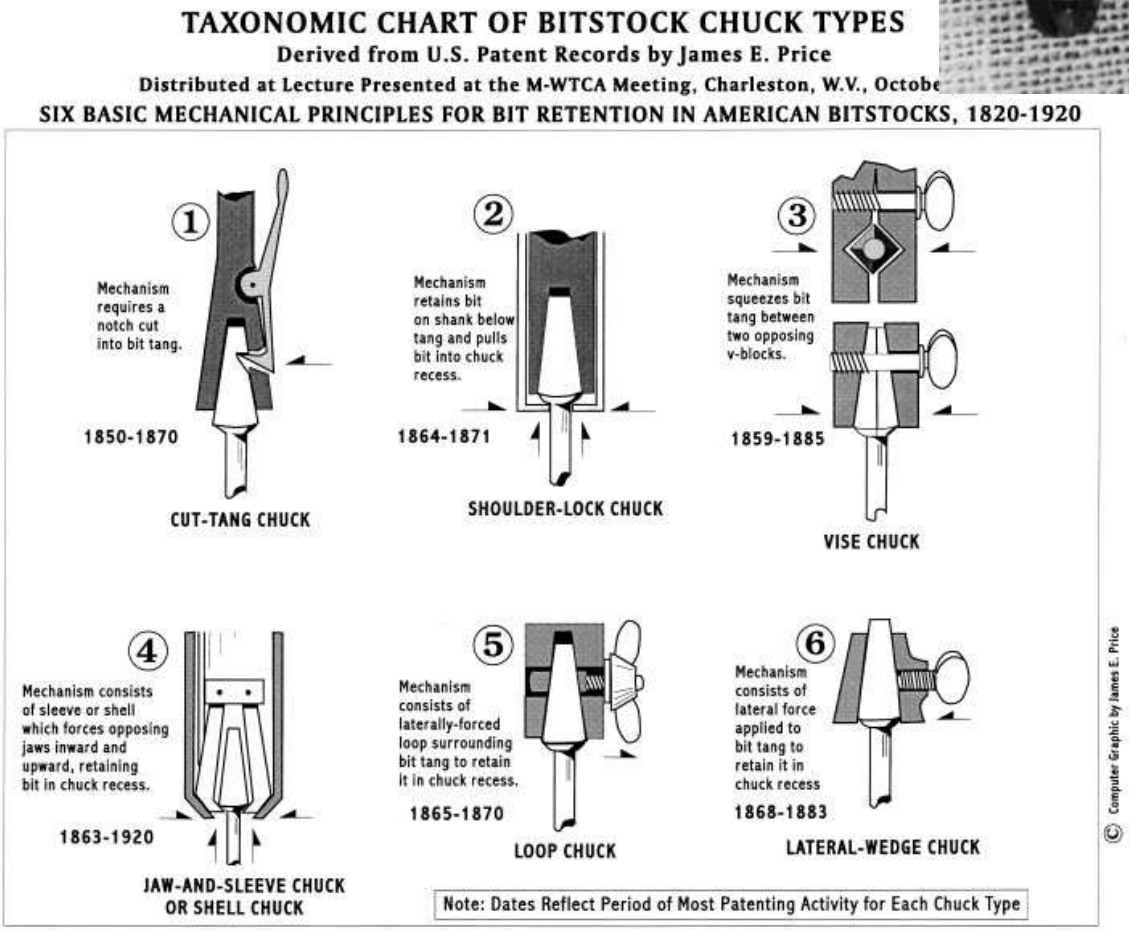


A small iron brace with a thumb screw is marked H.O. White, Hebron No. 4. This brace is undated, but from its form and maker, must date in the 1830's. In common with braces in figures 6 and 8, it has a large,

Only in the 1800s were further developments seen to the brace. And like the hand plane, most of the important innovations had taken place by the early 1900s. [EAIA Chronicle Vol41 p21, p44, *American Braces in the 19th Century* … Eugene L.Klingler]

The main innovation was a method to positively hold different sized bits in the chuck of the brace. The most important patent was by William Henry Barber in 1864 for the shell chuck, for positive holding of the boring bit in the chuck. The picture on the right above shows one disassembled. The two jaws locate in the slot of the threaded body, and the shell screws over the body from the front, clamping the jaws together. The shell chuck could accommodate a variety of bits of different sizes as we see today.
Soon afterwards, the ratchet was introduced, patented by Amos Sheperd in 1884. The picture on the right shows a brace with a shell chuck and a ratchet.
The basic design of the modern brace with the shell chuck and the ratchet was more or less in place, with incremental improvements since then.
The wave of innovation occurred at a similar time to the Bailey pattern planes. This was after the American Civil war and the large industrial capacity developed for the making of arms was redirected into innovations in other areas such as tools.
The types of chucks and the periods when they were produced are shown clearly in the chart shown below from
http://www.sydnassloot.com/Brace/History.htm

Number 4, the shell chuck began to dominate soon after it was first patented. A number of incremental improvements were patented up until 1920 such as different jaws and internal spring arrangements. There are a number of variations in the shell chuck, but the basic principle is still in use today.



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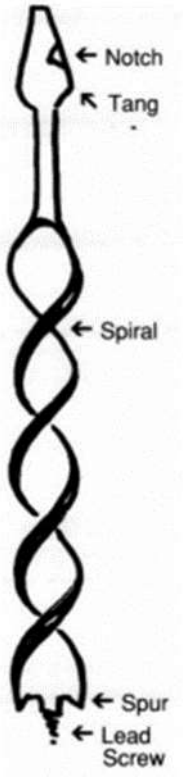
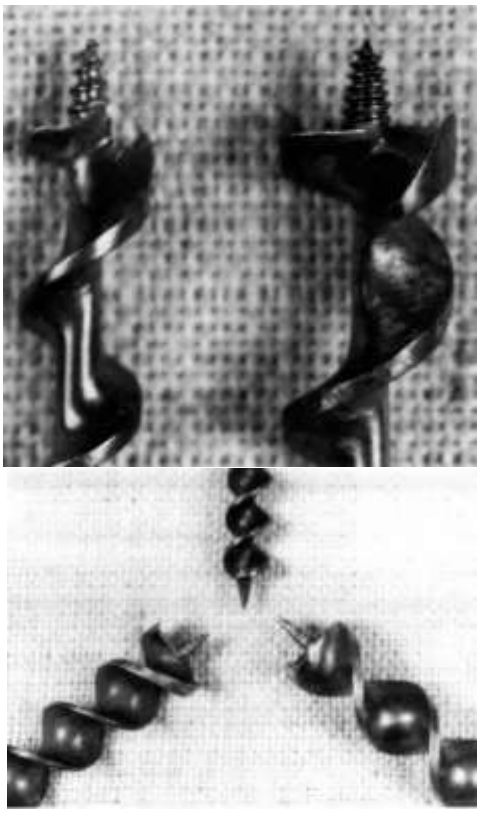


The spiral auger in modern form was patented in 1809 by L'Hommedieu. But despite being a major improvement, adoption was slow. The spiral lead-screw and helical flutes, were important innovations. The helix clears the chips from the hole, whereas, previously, the bit had to be withdrawn periodically to clear the chips and many would stay behind in the hole. The helix also locates against the walls of the hole, ensuring that the hole remains straight.



Spiral (technically, helical) bits are commonly found with single or double spirals. The right-hand picture shows two single spiral bits, with two different lead screws – one coarse and one fine. The pitch of the lead screw controls the rate at which the bit self feeds into the wood. The coarse thread is more suitable for softer woods, whereas the finer thread will give a better finish inside the hole.

If you know the pitch of the lead screw, it is possible to drill a hole to a prescribed depth simply by counting the number of turns. Start counting after the spurs have started cutting, just as the cutters start lifting shavings. To calibrate a bit, simply turn it in a certain number of turns into the hole and measure the depth. Ten is an easy number to work with. Remember that each bit may differ, particularly if you have an odd set.

Imperial bits are sometimes marked with numbers, which may indicate the diameter in 16^{th} of an inch.

Some bits are made with a triangular point instead of a lead screw, intended for use with a power drill. They obviously require pressure to feed, but the advantage is that the user can control the cutting rate, particularly when the bit is about to break through.

To reduce tear-out when the drill breaks though, as soon the point emerges on the other side, stop and if the bit has a lead screw, reverse rotation to back out the bit. Then drill in from the other side, using the small hole from the point to centre the bit in the hole. The spurs should neatly sever the fibres, with minimal tearout as the hole is finished.

The double spiral is also called the Jennings pattern bit as shown in the picture, upper right.

Irwin also make a bit with a so-called solid center and a thicker spiral as shown in the picture on the right, bottom right hand.

One or two spurs are usually included to cleanly cut the sides of the hole, to prevent tearout. Through the life of the bit, as it is resharpened, the spurs reduce in size and eventually disappear. Although the bit still functions, the walls of the hole become rough and display tearout.

Some bits are actually made without spurs by Irwin for use with power drills. These bits are called Scotch pattern bits. The holes made are rather rough and not really suitable for fine work, such as gluing in tenons or dowels, as there will be very little contact surface inside the hole.

If the spurs are less that the height of one turn of the lead in screw, then it may be helpful to file down the main cutting edges to increase the size of the spurs, although this is not often very satisfactory. Used bits with no spurs are probably best avoided unless they are a special size, when it may be worth the effort. Most bits you find used will need sharpening, which is easily done. Most bits can be sharpened with a small

triangular file, such as used for saw sharpening with only the smallest needing needle files. Some modern bits are made with quite hard steel, which is good, but makes them slower to sharpen.
Make sure you understand which surfaces to file and which not to. To visualise where you are filing, it may be helpful to mark the cutting surfaces with a black marker, so you can see exactly where you are removing metal with the file.

Once properly sharpened, you will find that the bits are capable of cutting very clean holes, possibly better than machine drilled holes.

There are several good guides to sharpening these bits on the internet such as this 2013 video by Paul Sellers https://woodworkingmasterclasses.com/videos/sharpening-auger-bit/ - free, but registration required.