All the News that fits

Southwest Louisiana Woodworkers Club March 2020

Bill Fey, President
Patrick LaPoint Treasurer

Officers and Directors

Barry Humphus, Editor, Eltee Thibodeaux
Daren Hood, John Marcon, Robin Richard

Mentoring Program - If you have a project, a problem in any woodworking area, these members have volenteered to help. Give them a call. Frank Tartarmella 802-8989; John Marcon: 478-0646; Eltee Thibodeaux: 436-1997; Ray Kebodeaux: 583-2378. Each have years of experience and knowledge.

February Meeting Highlights

We had the opportunity for the second time of meeting at Ray Kebodeaux's great shop and had a good turnout. We also have a new member join, one Joesph Carrascoe who is at Fort Polk.Welcome to the Club, Joesph!

Club president Bill Fey reminded folks that they should always wear personal protective equipment and in particular, dust masks and ear protection.

Mr. Eltee Thibodeaux started off Show and Tell with a fine scroll work of a Valentine heart plus a small truck he is giving to his friend Shorty Denton. Aaron Andrepont showed off a nice wooden hat of pine plus a very nice wooden articulated lamp.

Aaron also demonstrated a great construction calculator. While prices vary depending on model and functions, the range for a good one is from $40 to $70 from many sources including local ones. Aaron also mentioned that he really liked OKeef's Working Hands to relieve cracked palms and fingers.

Aaron mentioned that he had built about 750 small wooden cars and planes for the Operation Christmas Child program this past holiday.

J.W. Anderson showed off some of his beautiful cutting boards in a paatern of black walnut and 'mystery' wood. J.W. uses a finish of bee's wax and mineral oil. This mix protects the wood from excessive moisture and will not mold.

Darren Hood brought us a carved eagle of Phillipean mahogany he did several years ago. George Carr brought one of his great chip carved boxes plus a nice 'call sign' plack showing his radio call sign. Over the years, George has contacted some 331 different countries with his Ham radio gear.

Steve McCorquodale hauled in a beautiful white ash bench he recently constructed complete with a live edge. He said he cut the wood in the winter so as to preserve the live edge. White ash is light and strong with very straight grain and why it s used for professional baseball bats. Steve finished the bench with a water-based poly varnish.

Ray Kebodeaux had completed a tall vase of black walnut with an ash ring at the top plus a set of salt and pepper cellers from spalted oak and spalted pecan. Ray also discussed Youtube's Eddie Castelin's videos on making segmented bowls. Captin Castelin has lots of great videos on Youtube.com including turning techniques and making your own turning tools. Ray uses Captin Eddie's techniques to create segmented concentrict circles of wood to assemble into billets for turning into bowls by using a jig. Captin Eddie is headquartered in Jeffereson , La.

Ray also talked about another Youtube woodworking star, one Jerry Bennett who talks about how to build the perfect wedge sled for creating segmented bowls that Jerry calls Segmentology.

Next time: We meet at the shop of Kyle Andrepont on Saturday, March 14, 2020 at 9:00 A.M. We look forward to the meeting and your attendance. The meeting starts at 9:00 A.M. but feel free to come early.

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A New Lithium Battery Technology

The long-term goal for modern batteries is high energy Electric Vehicles, but the first stop will be small devices. The plan to have the first lithium-silicon batteries in consumer electronics, which will make them last 20 percent longer per charge. As the lustrous feedstock for the digital hearts of most modern gadgets, silicon and lithium are a dynamic duo on par with Batman and Robin. Crack open your favorite portable device—be it a portable drill, saw, phone, laptop, or smartwatch—and you'll find a lithium-ion battery eager to provide electrons, plus a silicon-soaked circuit board that routes them where they need to go. But if you combine the metals in a battery, it can create all sorts of problems.

When a lithium-ion battery is charging, lithium ions flow to the anode, which is typically made of a type of carbon called graphite. If you swap graphite for silicon, far more lithium ions can be stored in the anode, which increases the energy capacity of the battery. But packing all these lithium ions into the electrode causes it to swell like a balloon; in some cases, it can grow up to four times larger.

The swollen anode can pulverize the nanoengineered silicon particles and rupture the protective barrier between the anode and the battery's electrolyte, which ferries the lithium ions between the electrodes. Over time, crud builds up at the boundary between the anode and electrolyte. This both blocks the efficient transfer of lithium ions and takes many of the ions out of service. It quickly kills any performance improvements the silicon anode provided.

One way out of this problem is to sprinkle small amounts of silicon oxide—better known as sand—throughout a graphite anode. This is what some scientists currently do with batteries. Silicon oxide comes pre-puffed, so it reduces the stress on the anode from swelling during charging. But it also limits the amount of lithium that can be stored in the anode. Juicing a battery this way isn't enough to produce double-digit performance gains, but it's better than nothing.

But to push that number into the 40 to 50 percent range, you have to take graphite completely out of the picture. Scientists have known how to make silicon anodes for years, but they have struggled to scale the advanced nanoengineering processes involved in manufacturing them.

Sila Corpration was one of the first companies to figure out how to mass-manufacture silicon nanoparticles. Their solution involves packing silicon nanoparticles into a rigid shell, which protects them from damaging interactions with the battery's electrolyte. The inside of the shell is basically a silicon sponge, and its porosity means it can accommodate swelling when the battery is charging.

So far, none of the companies have seen their anode material used in a consumer product, but each is in talks with battery manufacturers to make it happen. For example, Sila expects its anodes to be in unnamed wireless earbuds and smartwatches within a year. Another company, Advano, which counts iPod cocreator Tony Fadell among its investors, is also in talks to have its anodes placed in consumer electronics in the near future. It's a long way from EVs or even our battery powered drills , but proving the tech works in gadgets is a small step in that direction.

"The pace of battery development is not as fast as other technology areas, such as computing," says Matthew McDowell, a materials scientist at the Georgia Institute of Technology. The reason, he says, has to do with the complex interplay of the variables involved when swapping out graphite for silicon in battery anodes. It's not just a matter of increasing energy density, but also making sure that this doesn't reduce the battery's thermal stability, charge rate, or life span.

This is why companies are starting with small consumer electronics for the first wave of silicon-lithium batteries. They are the "low-hanging fruit," says Laurence Hardwick, director of the Stephenson Institute for Renewable Energy. Batteries in gadgets only need to last for a few years. EVs require batteries that last more than a decade and can handle daily recharging, a wide range of temperatures, and other unique stressors. Hardwick says that building a lithium-silicon battery that retains its high energy over longer time spans is a "much greater challenge."

So what we are going to see in about a year are much more power for our tools in our shops. But, you are going to be facing the cost of new tools for battery power with the new lithium-silicon batteries that are going to tbe released for our tools.

This is a challenge for us woodworkers, so just be prepared as you may.

Barry Humphus

The Clean Through Mortise

The history of the through-mortise begins with a joint that was necessary because of the tools and technology of the day, and it ends with a joint that flaunts the skills of the modern woodworker like a prize chicken at a county fair.

A through-mortise – which is where the joint passes entirely through a leg or stile – is rarely structurally necessary in modern furniture thanks to high-strength glues and machine-cut joinery surfaces that maximize the amount of wood-to-wood contact.

However, they are sometimes necessary for other reasons: They are a hallmark of certain furniture styles, including some early American and European pieces, Arts & Crafts furniture and stick chairs, such as Windsors and Welsh chairs.

In contemporary work, through-mortises are often used as the calling card for a handmade piece of furniture. Few furniture factories go to the trouble of making this joint, so individual makers use it to differentiate their work from the fiberboard garbage that clogs our stores and homes.

The reason the through-mortise is a poster child for handmade furniture is that it is a challenge to make well – much like the dovetail joint. People's eyes are drawn to expressed joints like this, and small gaps make big impressions.

Through-mortises appear in the earliest extant furniture. Egyptian beds and stools typically used the through-mortise to join their legs and rails. Exactly why this joint was employed isn't known, but we can guess. With a lack of reliable glues, a through-mortise joint allows lots of wood-to-wood contact – friction if you will – that will keep the joint together. Sometimes these joints were even lashed together, and the tenon passing through the mortise which allowed this.

As furniture evolved through the 18th and 19th centuries, it became much more the norm to obscure joinery rather than show it off. Furniture craftsmen avoided the problem of unreliable glues by cutting a blind mortise (which is open only on one end) and then driving a peg through the finished mortise and tenon to mechanically lock the pieces.

However, in the world of the woodworkers who fitted out houses with doors and window sash, the through-mortise remained a staple of the trade. When joining the rails and stiles of windows and doors, through-mortises are typical even in houses built at the dawn of the 20th century.

The reason for that is two-fold. Doors and windows are made up of heavier pieces that need to take more abuse than a piece of fine furniture. Plus, a through-mortise has other advantages. It can be cut using fewer jobsite tools (a chisel and a mallet is all that is needed) and you don't have to take the time to clean the bottom of the mortise. It can be assembled and wedged with fewer clamps. Things can be more easily dismantled for repair – dig out the wedges and pull the joint apart. Tis was the reason that the late George Kuffel and I built a trestle dinning table using this joint.

That's how things stood until the furniture factories came along. Some of the earliest factory machinery was designed to cut mortises and tenons. But in an effort to make less-expensive furniture for the masses, factories began using less-reliable joints – such as dowels – that could be made quickly and cheaply with precision machinery.

From the outside of the furniture, the results looked the same. A blind tenon and a doweled joint are indistinguishable from the exterior of a piece. And I've even seen doweled pieces that have a fake exterior peg, which implies there is a tenon in there instead of two skimpy bits of dowel.

Some furniture consumers were unhappy with this mass-produced flimsy furniture coming out of the factories. From this discontent rose the Arts & Crafts movement. At its best, the Arts & Crafts movement celebrated stout joinery. High-quality pieces used through-mortises as a way to show the consumer how the joint was made.

These visible joints were put in visible places – on the tops of chair arms, on the fronts and ends of casework pieces, on legs. However, making these visible joints must have proved to be a challenge. They appear on only the best pieces. They don't always look tidy (especially the ones that are close to the floor).

Today the through-mortise joint is used when you are reproducing certain furniture styles or are attempting to display your craftsmanship. No matter why you make this joint, the standards for what is acceptable have changed. Gaps between a through-mortise and its tenon aren't acceptable in good work.

So the imperative is to make this joint look perfect, and the tolerances are tough to hit. But you can do this as several videos on Youtube.com tell you how to make these joints.

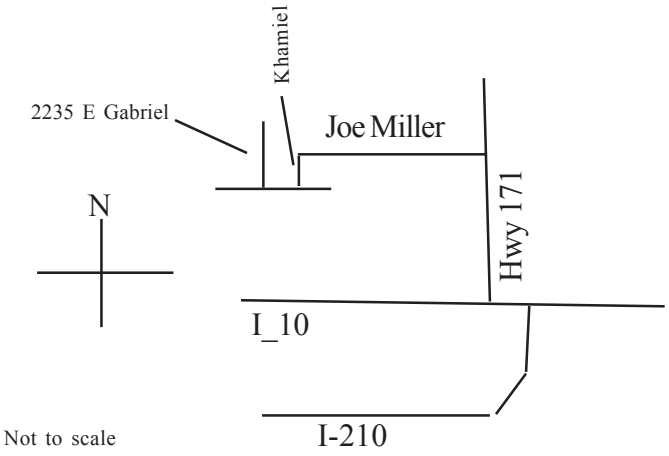
The table that George and I constructed was for our beach house in Galveston and we decided to do this only because it would be very difficult to get the table into the home without the top and legs being taken apart. The through mortise made this possible. The design came from a wonderful book "Dining Tables" by Kim Carlton & Masha Zager published by Taunton Press (2002). Barry Humphus with help from the above book and Popular Woodworking.

March Meeting Location

We have the wonderful opportunity to meet at Kyle Andrepont's shop.

To get there, you can go North on I-210 to Hyw 171 and travel north to Joe Miller Road and turn left (East). Go to N. Perkins Road and turn left. From N. Perkins Road, go south to Khamiel Drive and turn right (West). Go to East Gabriel Square and turn right (North) to 2235 East Gabriel Square on your left. You could also travel North from Sam Houston Parkway all the way to East Gabriel Square and turn left.

Hope to see you there. Should you need further instructions, call Kyle Andrepont at 337-855-0537.



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