



Working with shell

Kurt Hertzog looks at using various types of shell in his turned work

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As we've been exploring materials and coloration techniques a bit out of the normal woodturning, I'd like to continue this month with the use of shell. Of course we can't turn the shell in the traditional sense of cutting away and creating shape with our lathe and turning tools. We

can remove shell material to refine the shape or create interesting features. If we don't feel inclined to cut, pierce or mechanically alter the shell, we can simply paint or dye the shell. When I speak of shell, I don't really put bounds on which types. It can be egg shells, sea shells or anything else in the category. This month, let's explore a few of the types of shells and how we might integrate them into our turnings.

Safety

Working with shell may seem pretty innocuous but there are some special considerations. Depending on whether you are cleaning the shells or buying them already prepared, you'll need to be aware of any hazards of disposing of the animal contents and cleaning the shells. Protective gloves and good hand cleansing practices are in order. I always disinfect any of the shells that I process with a stiff mixture of bleach



In addition to the usual PPE, use dust extraction and breathing protection when working with shell

and water followed by a good rinsing and drying. I don't know if this is necessary but I want to protect subsequent handlers from any hazards. Of course, the standard eye protection is in order when working with any tools and cutting processes. Breathing protection is particularly important when creating any shell dust and debris. Ingesting these particles needs to be prevented. Check your dust mask to be certain it is filtering to the correct particle size depending on your process. Each type of shell and process may create different sized particle dust. Ignorance of hazards may take years to become evident. Be certain you are taking the appropriate safety measures now.

Where to get shells

There are a variety of sources of different shells. With the popularity of the sputnik sea urchin shells for ornaments, you may find these shells in your local woodturning retailer. If not there, they are readily available from the shell dealers via the internet. The variety of sizes, shapes and colours will give you plenty to choose from for your needs. Egg shells are available from many sources. If you are working with chicken egg shells, your source can be your local grocer or nearby farm. If you can get chicken eggs from your farmer, you'll not only have far better eating, but superior shells to work with. The shells will be thicker and more durable than those from the mass producers. My method for cleaning shells for use doesn't allow me to reclaim the egg mass for cooking but I can certainly appreciate the quality difference of those I use for cooking. If you are cleaning your chicken eggs, you'll find information on many different methods of 'blowing' the eggs online. I favour the single hole method, but you are welcome to use any method you prefer. Virtually all other shells are available for purchase already cleaned and ready for use. If your local retailer doesn't have urchin shells in their various sizes or colours or duck, goose, emu and ostrich eggs, you can find sources for these via the internet. Other than my chicken eggs, I get all of my other shells cleaned and ready for use from an internet supplier.



Plenty of types of shell are available at your grocer, turning retailer or on the internet



Start with chicken eggs, which are readily available, inexpensive and easily prepared for use

What can you do with them?

There are a host of things you can do with the different types of shell material available. One of interest that we won't be able to cover this month is using crushed and broken shell as a mask. The different shell material with the unique broken sizes and shapes can be bonded to other turnings temporarily to shield that work from torching or painting. The protective shell can then be removed leaving that uniqueness underneath unaltered by the burning or painting process. We'll explore that in a future article. This month, let's focus on using the shell materials as a part of our turning. The two most straightforward applications are ornaments and lidded boxes. Both of these applications can incorporate either unaltered or adorned shells.

FAR RIGHT: An easily made chicken egg shell ornament with some spray paint, self-stick appliqué and turned finials

RIGHT: A sea urchin shell lidded box with a choice of two lids, simple turnings and one glue joint



Cutting and sanding shells

Being cautious of the dust created, you can cut and sand shells with nearly any type of high speed cutters. These can be carbide dental burrs in a high speed hand piece or a cutoff wheel in a rotary carving tool. Bear in mind that the force on the shell should be minimal, letting the cutter perform all of the work.



When working with shell, the higher the speed and lighter the touch work the best

Colouring shells



Colouring can be easily done with acrylic spray paint, egg dyes, alcohol markers and airbrush colours

The techniques for colouring shells fall into two different categories depending on the shell type. For all egg shells and non-seamed sea shells, you can use nearly any immersion dye or applied paint method. The texture of the shell surface will provide a great substrate for acrylic paints to bond to. If you intend to do any piercing or shell alterations, it is usually best to do those before dyeing or painting. That way the open edges will be covered with colour and won't present the tell-tale white, showing your alteration edging. You can also take advantage of the porosity of egg shells with any open edges. Alcohol-based dyes will wick into the shell from these surfaces creating a unique colouring effect. For shells such as the sputnik sea urchin shells, caution must be used when colouring. Any immersion process will likely cause the shell to separate along one of the seams. Any coloration should be done with an additive spray process with minimal shell wetting.



Taking advantage of the shell porosity, 'magic' marker colours can be wicked into the shell

Bonding wood to shell

In a perfect world, you'd never bond shell to wood based on their dramatically different characteristics. Wood will continue to take up and give off moisture forever depending on the relative humidity. That moisture change will cause dimensional changes. Shell will not be susceptible to this like wood. A brittle non-moving material bonded to a dimensionally changing material is a recipe for joint failure. Of course this is tempered with the species, grain orientation, range of humidity swings and the method and amount of interface. You may wish to review *Woodturning* 252 and *Woodturning* 269 for in-depth explanations of where, why and how to bond and adhesives. Whenever possible, I avoid shell to wood bonding. When I must bond the two together, such as the chicken egg shell to the finials or stand, I use epoxy. I take pains to minimise the glue area and effect a glue trap in the wood portion. These two actions will reduce the likelihood of any failure of the joint because of the expansion or brittleness. Another advantage is that most of the wood interface is end grain, nearly always being a spindle turning. While end grain is usually not the selection for an adhesive join, here it works to our advantage.



By design, only wood-to-wood glue joints using the bamboo rod to bond all of the blackwood pieces



For shell to wood bonding, I use minimal glue interface with epoxy adhesive



Contouring the wooden interfaces to follow the curves of the shell, place a small amount of adhesive in the centre

Hanging ornaments

The season where ornaments are big has passed but it isn't too soon to begin making next year's. The types of ornaments really is limited only to your imagination. Whether hanging or standing, you have many options to factor into your creations. In the hanging ornament category, the ever popular 'birdhouse' ornament can have the roof shaped, adorned or not, as you wish with a shell body. You need not be an artist to create some very interesting ornaments. The shells can be spray painted alone or have some craft store self-adhesive appliques applied for interest. The assortment of available appliques is huge and they are very inexpensive. A simple spray painting with contrasting colour swipes draws attention as does easily done pyrographed shingle roofs. Hanging ornaments can also include the upper finial, body and lower finial styles whether pierced or not. When turning your finials, dense species such as African blackwood (*Dalbergia melanoxylon*) will give you a dark colour naturally and hold exquisite detail. In the past, I've experimented with other species and tried to colour it black but have never been completely satisfied. I find that blackwood,

despite its pricing, fits the bill and is worth seeking out. Of course, the grain needs to be straight for strong, delicate finials. Any figure or off-axis grain is a potential failure point once you've turned thin.



Piercing allows for internally placed items to be featured such as this candelabra-shaped earring



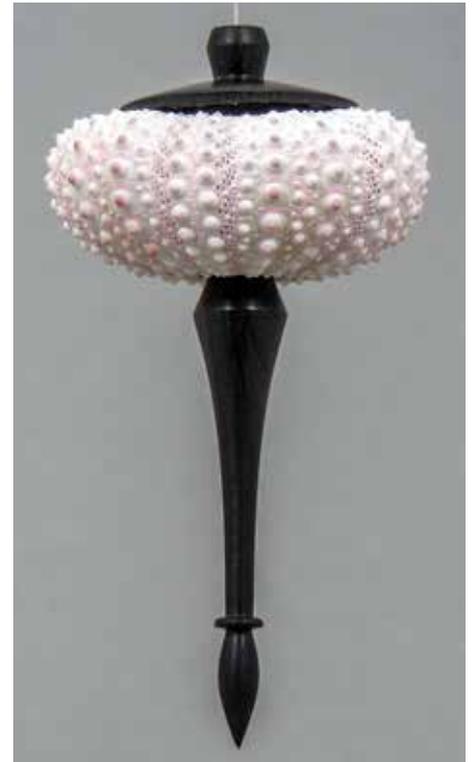
A painted chicken eggshell with pyrographed and dyed cherry roof with a paper bird on a perch is easily made



The body, pierced or painted, can feature your finials as delicate spindle turnings



If you intend to turn thin, resembling melting icicles for example, straight grain dense wood is critical



Mini urchin shells, available in green, pink, violet and more, can make a simple but pleasing ornament

Standing ornaments

The beauty of standing shell ornaments is that they need not be 'delicate' or lightweight. Since they won't be hanging, you won't be stressed with the strength of the fishline used for hanging or having the tree leaning over. You also have the luxury of creating a stand of your desire rather than the hanging stand apparatus, normally made of gold wire. Another advantage of the standing ornament is the year-round display potential. While you

can use hanging ornaments all year, they tend to be displayed most often during the festive season. Standing ornaments can be displayed on desks, bookshelves, mantles, display cases and more. You can use nearly any shell and any colour scheme you wish to set off your standing ornament. I find that goblets, even with piercing, are an eye catcher. The bonding mechanism becomes far more forgiving. Of course you want the shell bonded to the base

but because there will be no weight loading on the bond, you only need to hold it in place. I use the same mentality of trying to conform the nesting in the base to the contour of the shell. A small amount of adhesive in the centre will suffice to keep the shell in place with virtually no dissimilar stressing of the bond. Also, the bond areas are very small so there isn't the type of movement that occurs in furniture and other objects.



The standing ornament lends itself to non-traditional work such as this pierced and painted goblet



Additional desktop-type standing ornament ideas using very simply turned stands



Brown chicken eggs exhibit a brown colour on the surface only; below they are white



A bit of a different stand with interchangeable goose egg ornaments; internally, there is a fake diamond stickpin

Other examples

I wanted to provide some other examples to illustrate the versatility of including shell as part of your turning project. These are intended to either tease you into trying to use shell and also to give you some ideas to expand your thoughts in to. Don't be bound just by the mechanics of having a shell be a component in your final turning. Use it as a canvas to add colour, shape and texture. The artistic potentials far outstrip

the component aspects. Painting, dyeing, appliqué, carving, piercing, abrading, sandblasting and more are all areas to explore. If you aren't particularly artistic, find someone who is. Collaborate with a family member, friend, club mate, local art school student or whomever can bring their skills to the final result. Once you head down the artistic path, you'll expand your turning horizons tremendously.



Airbrushed goose egg standing ornaments: a collaboration with the late Giles Gilson



A standing chicken egg ornament inside a standing goose egg ornament



A pierced and painted goose egg lidded box: acrylic paint and blackwood base and pull



Steambent and painted maple stand with pierced and painted goose egg ornament on African porcupine quill

Conclusions

My goal this month was to whet your appetite. I believe that most turnings can often benefit by the addition of other materials, colours and other enhancements. Shells are almost always very modestly priced and available. Your use of them can range from as simple as colouring them with some acrylic spray paint or nearly any artist's paint, to as complex as piercing, dyeing and painting. At either end of those extremes, you can get

clever and make your shell part of your end result, whether a major or minor piece. There certainly are opportunities to include shells into more than lidded boxes and ornaments. Is using shells as part of your turnings for you? Perhaps not but being so simple and inexpensive, you don't have much to lose. I hope I've given you the basics and enough curiosity to give shells a try. ●