

## San Diego Woodturners Club Penmaking Demonstration 20 November 2010

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Today I propose to discuss my thoughts, experiences and ideas about turning wooden (and other material) pens on the lathe. It is, however, important to emphasize some disclaimers. First, I am not a professional, nor even an especially accomplished, penturner. Everything presented in this demonstration is entirely my personal experiences and preferences and not a definitive guide to the entire world of pen turning. I hope to provide you a beginning set of references that will assist you in starting or expanding your pen turning efforts. As the actual act of turning the pen is not especially fascinating, this demonstration will be long on discussion and tips and short on actual turning. I am available by phone or E-mail for additional questions or thoughts.

Pens are a very good way for some beginners to start out their turning experience. It is possible to turn a pen from scratch to finished pen in under an hour. Accomplished turners can turn out many in one hour. A nicely turned and finished pen makes a very desirable gift and is often extremely appreciated by the recipient. I have watched our Tom Cummings and Sally Ault teach absolutely novice turners to turn a pen in about a 45 minute or less training session. Some of the “students” are under 12 years old and many other older “students” have never been involved with woodturning or woodworking before.

In our Club we have several extremely professional pen turners. Foremost, in my mind, is Art Majerus, who would be here giving this demonstration except he is on the road selling pens at various Craft Fairs around the country. He is not only a professional penturner but he is also especially generous with his time, advice and assistance. I developed my interest in pen turning at a demonstration he gave at an early Mini Symposium. Several other Club members sell pens to offset their expenses and are available for further consultation and opinions. I seek in advance your forgiveness if my opinions and choices are in any way offensive. As all of us have, I have gained much at the feet of Tom Cummings who continues to selflessly share his talents, materials and time to interest non club members, children, women and students in woodturning and pen turning.

In the larger picture, I have benefitted extensively from attending demonstrations and having discussions at the Utah Woodturning Symposium, the Annual AAW Woodturning Symposiums and the excellent Arizona Woodturners Association Desert Roundups in Mesa, Arizona. Kurt Hertzog who is a nationally recognized penturner as well as a recent member of the AAW Board of Directors has been particularly helpful and authorized me to incorporate material he has presented in various penmaking demonstrations without further recognition. Kurt is very outgoing and seems always interested in expanding general interest in penmaking at all levels but, most of all, he is enthusiastic about “improving the breed” by emphasizing better ways to produce pens

you can be proud of. I highly recommend you look for his regular articles in Woodturning Design Magazine.

At the end of this presentation, I have tried to put together some reference materials that may be of use should you want to further explore pen turning. Needless to say, with the Internet and Google so prevalent and easy, I am only able to provide the references and sources I use. A quick study of material available on the Internet could occupy you for several weeks.

## **GETTING STARTED**

Making a pen, pencil or fountain pen from a kit is not an especially complex or difficult process. However, in this presentation, I will try to cover the many pitfalls as well as suggest procedures that I find work for me.

The basic procedure for producing a finished pen is:

1. Select a pen kit of your choice.
2. Select an appropriate wood or other material you want to use for the pen.
3. Cut and mark the pen blank
4. Drill the pen blank
5. Glue in the brass tube (s).
6. Clean and trim the glued-up pen blank
7. Mount the blank on the lathe, usually with a mandrel
8. Turn the pen
9. Sand and apply finish to the pen.
10. Assemble the pen.

### **Lathe:**

Turning pens generally requires a wood lathe of some sort. Pens can be turned on virtually all lathes used for woodturning. The smaller, workbench top lathes such as the Jet Mini Lathes, the Delta Midi-lathes and specialty pen turning lathes work fine for virtually all pen kits and types. You can turn pens on full sized lathes such as the Oneway, Stubby, Powermatic, Vicmarc, Serious, Robust and VB as well. I use my Oneway 2436 because that is the only lathe I own. Variable speed lathes are handy but not required for most pen turning. If you have a lathe, you should be able to turn a pen.

### **Tools:**

The “correct” tool to use for pen turning is the one with which you are most comfortable or effective. To that end, I attended a demonstration at the AAW Symposium in Hartford, Connecticut last year in which the demonstrator showed how to turn a pen with a skew, a spindle roughing gouge, a bowl gouge, a spindle gouge, a parting tool, and, indeed, with a scraper. Lately, the relatively new Hunter or Hunter-type tools with a small, round, carbide tip have been touted as an ideal pen turning tool. So the choice of

preferred tools is up to you. I believe that the more professional and experienced pen turners use a skew with which they are comfortable. I am *not* one of those turners. Despite having attended demonstrations on the skew by such notables as Richard Raffan and Alan Lacer, I have not mastered the fine art of finding the “sweet spot” and turning pens that require almost no sanding. This is a very desirable goal but not one I have succeeded in achieving as yet. I reluctantly admit that I do often use skews on their side to obtain the final dimensions of the barrels to match the bushings but that hardly counts as “using” the skew as it was intended. In that configuration, it is really just a scraper. I commend to your efforts learning to properly use a good skew for such “spindle” turning. The better turners do.

The first pen turning demonstration I attended, the demonstrator showed that almost all of the pen could be turned using a spindle roughing gouge. That is what I primarily use today. The size of the roughing gouge is up to you. I happen to have mostly large roughing gouges but smaller ones are probably a better choice.

I frequently use bowl gouges and spindle gouges when the spirit moves me.

### **Pen Kits:**

The subject of pen kits can be very lengthy. At the simplest end, you can purchase basic 7 mm twist Slimline pen kits for anywhere from about \$1.50 or less per kit depending upon the type of finish to well over \$7 each. Buying in numbers greater than 10 at a time often brings the cost down considerably. At the higher end, special fountain pen kits with Rhodium tips can run in excess of \$80 each. In any given pen kit category, there is usually a choice of finishes. The finishes vary in *wear resistance* mostly as well as color. The basic 24k gold finish, which may seem very desirable, has a very low wear rating. Pens I made with these kits have pretty much worn away to a dull metal under-finish within two or so years depending upon the use. 10k gold is better for wear. At the highest resistance to wear, you have the Rhodium, Titanium and Platinum series with excellent long term wear resistance. Not surprisingly, these are more expensive. Clearly it seems that at first you might consider less expensive kits until you hone your pen making skills. When it comes time to turn a special pen for special person’s graduation, etc., then consider a Titanium or Rhodium finish on your kit.

Pen kits are available from an extremely wide range of sources. Rockler in San Diego has a good variety of pen kits and generally has the correct bushings for the kits available. **Warning! Not all pen kits are the same!** Many pen kits from different manufacturers use the same for very similar names for their pen kits. Slimline pens, Cigar or “Fat” Pens, and European pens are names many manufacturers use. Be very careful! My experience is that you need to make sure you are using the bushings and instructions for the *exact* pen kit you select. Bushings for Cigar Pens from Rockler, Hut, Berea, Craft Supplies, etc., have been found to be sufficiently “off” to make mix and match a bad idea. I have ruined many pens by failing to follow this advice. I strongly recommend that if you buy kits from different manufacturers (even though most of the kits are made in Taiwan or China) make absolutely sure you use bushings and

instructions for that kit. It is also my personal opinion that after trying a wide variety of pen kits, one should settle on a limited number of pens that you like and your friends or “customers” like and stick with them. In my experience, the “popular” pen kits are the Slimline 7mm twist pen, the Cigar or “Fat” Pen (more for men than women), and the Streamline pen built on a 7 mm mandrel but turns out a little larger and more comfortable for many people. Clearly, however, you should make the pens people want or you want. Lately, the Sierra Pen kit and the Patriot or Atlas pen kits have become popular because they only require one piece of wood instead of two. Look at the catalogs and online and become familiar with the vast variety of pen kits types, finishes and costs. Then select a few you might want to try.

Kurt Hertzog strongly recommends, and I agree, that you should consider replacing the inkfills that are provided with the kits with a good, high-quality inkfill. Consider using real Cross refills for the Slimline-type pens and real Parker, Schmidt or Sheaffer refills for kits that call for that size. If you are going to sell or give away your pen, you really want the quality of the ink to reflect the quality of your pen. It is also very thoughtful of you to include one spare high-quality refill with your pen.

### **Pen Blanks:**

Fortunately, much of the beauty and desirability of a finished pen comes from the choice and finish on the material turned for the body of the pen. There is a virtually unlimited supply and variation on choice for the body of the pen. Primarily, I will address wood which has hundreds of different options alone. However, the selection and beauty of non-wood pen blanks is even larger. A pen blank can be made of wood, various wood products, plastic, acrylic acetate, animal horn, rifle bullets, Corian, etc.,. It is worth noting here that Art Majerus, who sells many more pens than I have ever considered, finds that the higher end pen collectors and purists often desire the acrylic or hard plastic pens. He sells these generally for more than the wooden pens. All these types of blanks can be turned on the lathes mentioned above with some changes in the procedures or materials used to finish the pen. The pen blanks of all these sorts are available from a vast array of “providers.” In general you can find them in the same place or catalog you find the pen kits. For a head’s up, Art Majerus ONLY uses stabilized wooden pen blanks. When you look at various catalogs, you will see some of the blanks are “stabilized” and some are not. A stabilized blank has been processed to provide greater stability while turning and using. I can’t tell you the number of pens I have ruined because the non-stabilized blank broke apart during the turning process. It can be very frustrating to get that far only to have to begin over from scratch. I highly recommend stabilized blanks.

Animal horn such as deer antler or buffalo horn can make a very distinctive pen. I have made a few pens out of deer antler and am very happy with the results. I have given them to friends who hunt and they seem to really appreciate them. You can also make a wide variety of pens out of spent rifle bullet casings. Some advanced pen turners actually manufacture the blanks out of materials found around the shop or home. The options seem to be endless.

However, never fail to consider “free wood to good home” as your source. Again, it is my strong personal opinion that you should always try to find a really nice, figured or interesting pen blank, be it wood or plastic. Most of us have access to cutoffs or small pieces of really nice wood either in our shop or from a friend who usually has no use for “small” pieces of wood such as can be used for a pen blank. Since most pen blanks are about 5/8” X 5/8” X 5 to 7” long, you don’t need a very large piece of beautiful “scrap” to find a perfect pen blank or several pen blanks. Another strong opinion I hold is that making a pen out of a bland maple or teak or even walnut blank rarely results in a really beautiful pen. I find the most interest in very nicely figured woods such as cocobolo, amboyna burl, any of many Australian burls, buckeye burl, masur birch, bocote, zircote, etc. A wood that has a nice pattern that only appears in a large piece of furniture rarely makes an attractive pen. Possible exceptions are fine ebony blanks. Another great wood is the olive woods (especially the Holy Land olive wood pieces) which often have great grain patterns. My personal absolute favorite is amboyna burl which has to be the most beautiful wood in the world – but often very expensive, too. Recognize that “free wood to good home” blanks are not stabilized and you should exercise greater care when turning them.

People who know me well recognize that I seem incapable of passing up an offer of interesting pen blanks. Please don’t tell my wife that I have many more pen blanks than I can ever turn into finished pens. Nonetheless, whenever I see another display of great pen blanks, I have to try at least a few. While you can (and I regularly do) purchase pen blanks from the principal catalogs (Craft Supplies, Penn State Industries, Berea Hardwoods, Hut Products, Rockler and Arizona Silhouette,) your best deals will undoubtedly be at the various vendor shows at woodturning, woodworking or club vendors. Really beautiful pen blanks can be purchased at truly good prices at these events. For instance, I expect to see quite a few nice pen blanks at the forthcoming Arizona Woodturning Roundup in Mesa, Arizona. The vendors at the Utah Symposium and the AAW Symposiums are also a great source of blanks.

Note: As is almost always recommended in the pen kit instructions, cut your pen blanks just slightly longer than the brass tubes from the pen kit. That allows for some slack, chipping and even possible cracking during the drilling process. In order to ensure that you maintain grain pattern in your pen after you have turned the blanks down, you really should mark your blank with something like a felt tip pen (I use a sideways “V” pattern) so that you will be able to re-align your blanks after you have glued in the tubes and are preparing to mount them on the mandrel.

### **Mandrel:**

The Mandrel is basically the metal bar that fits between the centers on your lathe and holds you pen blank(s) and bushings for turning. Most mandrels are sized to allow both an upper barrel and lower barrel to be turned at one time. The bushings are used to

separate the blanks on the mandrel and provide the guide for how much wood (or other material) to take off the blank

Note: The easiest and most basic way to turn a pen is to use a special pen turning mandrel available from any of a number of sources. A more complete list will be available at the end of this article but mandrels can be found locally at Rockler Woodworking and Hardware (8199 Clairemont Blvd., San Diego, CA 92111 858-268-1005) or in the Craft Supplies USA Woodturners Catalog or in the catalogs from Penn State Industries, Arizona Silhouette, Berea Hardwoods Co. or HUT Products. Many other sources carry pen turning mandrels as well.

The basic mandrels generally come fitted with a #1 or a #2 Morse taper to fit into your headstock. Specific bushings fit on the mandrel in a sequence specific to the pen kit you are using. The pen mandrels usually come in 7 mm size with the 7 mm bushings sized for your kit. For some larger pens and fountain pens a larger mandrel is available with larger bushings. These larger mandrels are called by different names depending on the source. At first the basic mandrel should suffice. Some sources offer an adjustable mandrel. I have been advised to stay away from these for quality control reasons and have not used them. Note particularly that advanced pen turners such as Kurt Hertzog often chose not to use a special mandrel or bushings but rely on careful measurements while turning to ensure perfect fits with the pen parts. Kurt often chooses to use a “pin chuck” of his own making when turning certain types of pens. You can be comfortable at first just using the basic mandrels recommended in the catalogs. Note, however, that cheaper mandrels are more subject to bending and may make the pen parts fit poorly in the end or after several uses.

When mounting the mandrel and blanks on your lathe, secure the knurled brass wheel tightly but not too tight. When bringing up the tail stock, do not tighten beyond what is required to hold the mandrel. Over tightening the tailstock can cause a “bow” in the mandrel and will result in a finished pen blank that is out of round and one which will not work well on the finished pen. “Tight but not too tight” is an important consideration here.

### **Bushings:**

As mentioned above, each pen kit comes with specific bushings which fit on a specific mandrel and provide the “guide” for turning down the pen blank to the correct size. Generally speaking, this is very straight forward. Place the bushings on the mandrel with the proper mounted pen blanks and turn down to the bushings. Often this works. Just as often, it produces a “poor” quality pen because the pen kit nib, middle band and top clip do not end up fitting exactly. The mark of a good pen, in my mind, is one where the nib flows seamlessly into the barrel which similarly flows seamlessly into whatever middle band you use and the same holds true for the pen cap or clip. Too often there is a marked “bump” or difference in diameter of these items. Every time one uses the pen, it provides a small source of irritation – at least to me. Kurt Hertzog is absolutely keen on this being

a mark of a well made pen and I agree. If you choose to sell your pens to recover some of your expenses, you will definitely want to consider this guideline carefully.

It is really just a matter of personal opinion, but I much prefer pens that look like elegant pen. One often sees, especially in “beginner” pens the “wasp-waisted” look. This effectively overcomes the need to be careful in turning the pen. The middle of the pen is not turned to the size of the bushing but is left larger on both the nub end and the clip end – ostensibly on purpose. Sometimes the same occurs at the nib of the pen where there are “gee gaws” or bumps placed near the nib for “design.” My experience is that these designs have very limited appeal and do not represent a well made or carefully made pen. Obviously for the first several pens you might make, there is no problem in producing such a result. They are unique, generally, and may make good initial gifts. However, I would encourage you to strive to make a better pen that feels good when writing and showing off. If you or your “customer” somehow prefers wasp-waisted pens, by all means turn them.

### **Drills:**

In order to prepare your pen blank of whatever substance, you need to drill the correct hole size for the brass tubes which fit inside your pen blank of choice. Drilling can be one of the more difficult steps in pen making. Some woods are particularly prone to cracking or splitting as the drill bit passes through the bottom of the blank. Focusing here on wooden pen blanks, the issue becomes drilling a hole down the middle of a not-very-large piece of wood without blowout. The issue is to drill a hole straight through a pen blank without damaging the entry or exit area excessively. There is also the issue of not “wandering” during the passage through the blank – a problem that can result in jammed pen action when completed. There are many types of drill bits recommended for this task. You all probably have the regular twist drills found in most shops. However, with longer and larger drill bits, there is the increased chance of blowout or damage to the pen blank when drilling. My experience has been that the Colt 5 Star Pen Drills from Craft Supplies (and available from other sources) are the best along with the special parabolic flute drill bits. I have tried bullet point drills, brad point drills with limited success. Destroying even one of a pair of pen blanks can ruin the start of a great pen.

In order to reduce the probability that you will blow out the pen blank when drilling, in addition to using something like the correct size Colt drill bit, it can be very useful to hold or secure the blank in a firm device for drilling. I personally use one of the special pen drilling vises available from Craft Supplies and other companies. Many sources recommend using other types of clamps or holding devices. All I can say is that your percentage of successful pen blank drillings increases as you secure the blank while drilling. It is also important to drill from the center of the pen toward the ends of the pen blanks. In this way, the center of your pen will have a higher probability of mating correctly. And, as you have cut the blank longer than the tubes, you stand a better chance of recovering from some minor blowout at the two ends of the blanks where you will be trimming down to the depth of the tube.

Note: Some of the more exotic pen kits require unique drills. Some are even “stepped” drills. I would recommend care in selecting kits that require stepped or particularly unique drills as my success rate with drilling the blanks has not been good. You can purchase special purpose drills that ostensibly drill the “stepped” hole. My experience is that this is an “iffy” situation. I have produced some nice pens that use this stepped drill process, but it really does not seem worth the effort and attendant failures. On the other hand, if your “customer” really wants one of these pens, by all means become proficient in this area.

### **Brass Tubes:**

The vast majority of pen kits come with brass tubes pre-cut to size for the specific pen you are making. There are several things you need to be careful of when handling the tubes. It is often very handy to measure carefully the length of the tubes and keep those figures available. Often the upper and lower tubes are of different length (if there is more than one.) It is possible even to have them of differing diameters but I have not found this to be the case yet.

Before you glue the proper tubes into the proper drilled pen blank, it is a very good idea to “scuff” the surface of the brass tubes with sandpaper to create some “tooth” for the glue to adhere to. I understand that the tubes can develop some corrosion on the surface which can interfere with the adhesion of whatever glue you use. I personally use something like a small piece of 150 or 220- grit sandpaper to rough up the surface of the tubes.

Note: Many pen kit companies offer long brass tubes generally of the 7 mm and some larger sizes in case you need to replace a damaged or lost tube. Saving the correct length of the original tube comes in very handy when you need to cut a replacement – and it is cheaper than ordering a replacement. If you find yourself making many of the same type of pen kit, I strongly recommend buying extra brass tubes or, at least, a number of long brass tubes of the same diameter to account for the inevitable “problem.”

### **Glue:**

Once you have correctly cut the pen blank to the proper size for the kit you are using, you must glue the brass tubes into the blanks. This is another area in which various pen turners hold strong feelings regarding the “proper” or “best” materials to use. The options generally are:

1. Cyanoacrylate or CA glue (the generic name for cyanoacrylate based fast-acting adhesives such as methyl 2-cyanoacrylate, ethyl-2-cyanoacrylate commonly sold under trade names like Super Glue and Crazy Glue. CA glue is relatively easy to use but *can* become brittle with age. Dick Sing, one of the most well known early pen turners and an early demonstrator for our Club, notes that CA glue can react with some of the toxins in exotic woods such as cocobolo (a great wood for pens, in my opinion) and cause rapid or premature curing of the glue even before you

- have had time to slip the brass tube fully into the blank. It just seizes as soon as it is partially inserted. I know, it has happened to me! Since the condition is aggravated if the blank is warm from just being drilled, he recommends putting the parts in the freezer for an hour or so before gluing in the tubes. The working time of the glue is extended and you should not have this problem. Another issue with CA glue is that you must be careful not to inadvertently glue the bushings to the prepared blank. Ensure the CA glue is dry before mounting them on the mandrel with the bushings.
2. Polyurethane Glue (often sold as Gorilla Glue). This glue is waterproof, cleans from the inside of tubes easily and provides a good bond to the brass tubes. It tends to expand and will tend to fill holes which might be too large. A disadvantage is that it gets very messy and tends to leave your hands black. It also usually has to cure overnight before turning the blank.
  3. Epoxy. Two part epoxy provides a very strong bond between the brass tube and the wood or other material of the blank. It is easy to use and can come in quick set or long set formats. I think this is generally the best choice. It also requires probably an overnight set before turning safely.
  4. White or Yellow Glue: Not recommended because they do not provide a good enough bond between the brass tubes and the pen blank.

Whatever glue you choose to use, it is important that you check the inside of the brass tubes after the glue has dried to ensure it is clear. Often, especially with Gorilla glue and CA glue, some of the glue enters the tube and can, if not cleaned out, prevent the kit from operating correctly when assembled or it might even prevent the blanks from going on to the mandrel. I have read and seen pen turners recommend plugging the ends of the tubes with a potato or soap or anything to keep it clear. When I have tried that technique, it has not been worth the hassle. I have had good luck just cleaning the inside of the tubes with a small file if the barrel trimmer did not adequately clean it out. The barrel trimmers will often clean excess glue from the tubes as well, depending upon the method you choose to use to trim the blanks to final size.

Especially if you make several pens in one day, I strongly recommend that you get in the habit of preparing the blanks and gluing them up a day ahead of time and then turning them another day. I use a home made board with about 50 long nails sticking up to store the glued up blanks over night before turning. Any system that allows you to “mass produce” the blanks before turning is desirable.

### **Barrel Trimmers:**

Once you have drilled and glued the pen blank, before you mount it on the mandrel, you will want to “trim” the ends of the blanks. The purpose of trimming is to ensure the blank is perpendicular to the mandrel so that when turned down to the correct bushing size, the blank will properly mate to the kit. Failure to properly trim the blanks can result in a very poorly fitting finished product. Barrel trimmers come in a variety of sizes generally intended to match the size of the mandrel the blanks will be mounted upon.

You can find barrel trimming kits from most of the usual pen kit or pen blank suppliers. I don't have a "favorite."

There are several ways to actually trim the pen blank. I, personally, mount the barrel trimmer on the lathe in the head stock and, using heavy gloves to hold the pen blank, press it against the trimmer. The end result is to obtain a smooth, perpendicular finish on the blank. This works for me if I am careful not to let the blank twist in my hand. Others do it by hand or use a drill press to trim the barrel. Others just use a sanding disc set up to ensure a perpendicular blank. I think it depends upon what you are comfortable with. Keep in mind that some turners have strong feelings about which is the "proper" procedure.

In any case trim the blank just until you see the tube end is shiny or has just contacted the trimmer. You must exercise care not to trim length off the tube as in many pen kits, the length of the final tube is critical to the proper operation of the pen.

### **Mounting the blanks on the mandrel on the lathe:**

The key issue here is to absolutely ensure that you have closely checked the instructions for the specific pen kit you are making. Be sure to focus on which end on the lathe is the nib end and which is the clip end. Often the length of the upper and lower blanks is different and there may be four different sized bushings mounted on the mandrel. These absolutely must be in the correct order for the final pen to go together correctly. To avoid acute embarrassment, I have not brought my collection of "mistakes" resulting from failing to follow the above advice.

Another important point is to apply just enough pressure from the tailstock to ensure the mandrel is held in place. Over tightening the tailstock can result in creating a slight "bend" in the mandrel. The result of such a bend is a finished blank which is not true to the center of the line between the headstock and tailstock. Consequently, the pen will not go together smoothly or, perhaps, at all.

### **Turning the Pen:**

Guidelines for turning pens include using a fast speed and very sharp tools. The pens are generally a relatively small diameter and the lathe needs to be going as fast as you are comfortable with. If you need a specific value, many pen making sources recommend 3000 to 3500 RPM as a good speed.

I start out with a spindle roughing gouge to round down the blanks. This can be one of the danger points of the turning. If you have non-stabilized wood blanks or somewhat punky wood or blanks with unseen voids or cracks, the application of a spindle roughing gouge may very well break the blank apart. If this has not happened to you, you just have not turned enough pens or you are REALLY good! I have heard it recommended by other turning demonstrators that one should take the blank to the band saw before mounting on the mandrel and cut off the four corners of the blank to limit the opportunity

for “chunking” the blank with the gouge. Another accomplished turner goes farther and recommends turning the rough, long blank down to round before drilling thereby eliminating or significantly reducing the chance of breaking the blank apart. I have to say I have tried both these methods and I end up just using high speed on the lathe and trying to be careful.

Again, Kurt Hertzog recommends turning only one of the blanks at a time to reduce the errors induced from having the blanks double mounted on the mandrel. Kurt further recommends not even using the bushings because they invariably become undersized due to scraping by the gouges or skews. He very carefully measures the pen kit parts that will adjoin the ends of the blank (the pen nib, the middle band (if there is one) and the clip end with a micrometer and then he checks his blanks using those measurements to guarantee a precise fit. Few others go to such extremes but few others make such fine pens as he does. These thoughts are offered for your information and inclusion as you choose.

If you are using suspect wood blanks or uncover a small void or crack, you can use thin or medium CA glue to secure the crack or firm up the blank. Exercise care that you do not inadvertently glue the bushings to the mandrel. Some turners coat the mandrel and bushings with a very light coat of tung oil to prevent inadvertent gluing. Using a light machine oil or even wax can potentially contaminate the finish of the blank. After using the CA glue, complete turning the blank down to the bushings or correct size.

Presuming that you are using bushings, turn down the blank with whatever your tool(s) or choices are. Try to precisely match the ends of the blanks with the bushings. Note, however, that you will be sanding and finishing the blanks before assembling the pen. You **MUST** allow for the additional loss of wood (or other material of the blank) during the sanding process as well as the very slight build up during the finishing process. Again, in my mind, the mark of a good pen will be smooth and precise fittings at both ends of all blanks.

If you can operate a skew successfully, you get a much nicer surface if you make the final cuts with your best skew. You will then require less sanding before finishing.

### **Sanding:**

When you have your blanks turned almost down to the bushings, it is time to sand and finish the blanks. The choices of sandpaper are too vast to note all the possibilities. I have used almost every kind of sandpaper I own on pens. In any case, judge from the quality of your last tool cut what grit sandpaper you need to start with. The accomplished skew user may be able to start with 220 grit or higher. I have been known to use 80 grit sometimes to start. In any case, continue to sand up through all the grits to at least 600 grit. The final choice of sanding grit depends often on the type of wood or material you are using for your blank.

A key point I have determined over a number of years is that with some woods such as cocobolo, it is necessary to sand manually *along the grain* instead of using the turning lathe to provide the rotation. When turning cocobolo, I manually rotate the headstock and sand parallel to the mandrel to avoid checks and lines in the blank. Cocobolo and some other exotic woods are very sensitive to heat and tend to show “micro” cracks if you sand too vigorously and create too much heat for the blank. Another key point is to turn down the lathe speed when sanding. Avoid, where possible, sanding the bushings as they will be reduced in diameter and your next pen will not be sized correctly.

Depending again on the material of the blank, I sometimes sand down to 2000 grit and finer. When turning plastics, acrylics and other artificial blanks, you may use micro surface finishing paper or kits. Many different such papers or materials are available in the various catalogs. With the plastics, stabilized woods (which may have been stabilized with plastics) and acrylics, you may end up sanding or polishing up to 12,000 grit or finer.

You may want to use a light coat of the finish you plan to use on the pen just to uncover spots or areas of roughness that don't appear until you have a finish applied. You can easily sand this back down. You may want to “raise the grain” of the blank with water or alcohol and sand again to ensure a very smooth surface. Incomplete or poor sanding can result in a poorly finished pen.

On many of my pens, after completing the sanding, I will use EEE Ultra Shine (available from Craft Supplies, Rockler and many other catalogs) to continue to smooth the surface. I don't do this if I am going to use CA glue as my finish, however.

Before applying the finish, if your blank tends to be porous, you can fill the pores in order to improve the quality of your end finish by applying a sanding sealer during the sanding process. I almost always use a cellulose sanding sealer during the sanding process.

### **Finishes:**

Not surprisingly, the subject of finishing your pen can engender strong feelings. Just to start, I will say that there are many different finishes that can be used with pens. Find the one you like and use it. If you (and your customer) are happy with the finish, it is a good one to use.

Most finishes are applied to the blanks with the lathe turning generally at a moderate speed. The primary range of finishing choices includes oils, lacquers, mixtures of oils and lacquers, French Polish, wax, CA glue, and combinations of the above sometimes augmented with a buffing out.

You may want to determine, before you make your choice, how shiny or glossy you want your finished pen. Some people prefer a more matte appearance on a nice wooden pen. Generally, using plastic or acrylic materials, a very glossy finish is desirable. I have been

told that you normally do not want to put a wax finish on a wooden pen because wax tends to accumulate dirt and oils from your hands when you use the pen. I have also been told that a very thin coat of Renaissance wax is good because it is resistant to heat, fingerprints and stays clear. I do use Renaissance Wax as the last application on many of my wooden pens.

Most of my pens used to be finished with many coats of Ben Matte applied throughout the sanding process. Ben Matte is a tung oil based finish with added synthetic resins. The finish resists abrasions, scratches and alcohol. Then I use Renaissance Wax at the end. I have had good success with this combination.

Art Majerus is particularly fond of the CA finish. Recently I have noted that throughout the pen making world, the CA finish is becoming far more popular. The advantages are that it is a long lasting and particular hard finish which resists dirt and the usual wear. It is possible to use a thin wax finish on top of the CA, if you desire an even more glossy finish. Depending upon your technique, the CA finish can be a matte finish all the way up to a very glossy finish.

The subject of applying a CA finish is another presentation in itself. Basically, the most common procedure includes using many coats of thin CA glue. With the lathe at a very slow speed, use a small plastic bag on the tip of your finger (the small bags that the parts of the pen kit come in work great), and apply drops of CA glue to the top of the wood and smooth it over the length of the blank. Putting your bag-covered finger on the bottom of the blank and dripping the thin CA glue on the top of the blank works well. (Note that some professional turners prefer using paper towels to apply the CA glue.) In one pass, smooth the glue from one end of the blank to the other. As the CA glue will begin drying immediately, do not go over it. Wait a few minutes and very lightly sand the surface smooth again with 400 grit sandpaper or so. Continue to apply more coats, as above, until you are satisfied with the finish. After three or so coats, or more, sand the blank with 600 or finer grit paper and then consider applying a light coat of Renaissance Wax or even Hut Wax. For even more, you can then buff the finish with cloth wheels and Carnauba wax. This is the procedure I usually use when using a CA finish. Know that there are probably at least a dozen other processes for applying CA finish each with an enthusiastic supporter somewhere. Try it and use the system that works for you.

If the above processes are too complicated and you want to have a quick and easy finish that will work just fine, consider using Hut Wax sticks. They come in satin or gloss bars and various shades. As the pen blanks turn on the lathe, just rub the bar of wax on the pen and then buff lightly.

### **Assembly of the pen:**

The assembly process is a critical part of the pen making process. I personally use a dedicated pen press. It makes the process very straight forward and easy. The press is adjustable for pens up to seven or so inches long and comes with plastic guards to prevent damage to the ends of the pen parts. It is, however, more expensive than other methods.

You can use a large vise, being careful not to bend or damage the pen parts. A wooden bench vise works well if you have one.

Make sure you carefully read the assembly instructions so you get the right parts on the correct end in the proper sequence.

With most pen kits, it is not necessary to use glue to secure the parts because the press fits are generally very good. If necessary, a spot of CA glue should ensure a long lasting bond. If you use a small amount of CA you may still be able to change the position or remove the part because CA glue is sometimes susceptible to sharp movements.

If you experience a problem during the assembly process, you may have to consider disassembling the pen to some extent. Craft Supplies and others do sell a pen disassembly punch set for approximately \$20. Sometimes you can salvage the parts and correct the mistake – but not always. Therefore, exercise care the first time!

### **Thoughts on marketing your pens:**

Should you decide to become the next Bill Gates by selling your pen products around the world, you might want to first consider some of the realities of marketing. First of all, there are a LOT of people who make “pretty good pens” around the world. As I have indicated in this article, the basics of pen making are pretty straight forward and not excessively complicated. Most beginning woodturners can produce a nice pen from a good kit with acceptable repeatability.

In pricing your “product” you must consider all of the sunk costs such as the lathe, your tools, all the sandpaper, finishing materials, support equipment, etc., etc. My observation has been that most relatively new pen turners seem happy to “sell” pens for anywhere from \$7 to \$20. It is my contention that you are doing yourself a disservice at those prices. There is no real way you can break even at that level. You probably pay \$2 to \$10 a piece for the inexpensive, “cheaper” quality kits. Not surprisingly, these are not necessarily big sellers in the long run once you have run out of neighbors and family. For the better quality pen kits you can pay easily \$10 to over \$80 for a pen kit. On top of that you need bushings for each separate type of pen kit plus a mandrel (and several spares, if you are turning pens in volume.) You also probably need a band saw, a drill press and the various pieces of equipment necessary to prepare and complete the pen kits. It is my personal contention that one should not “sell” his or her wares for less than at least \$25 a piece. Again, I would rather give a pen away as a gift than ask someone to pay \$10 to \$20 for it. I enjoy turning pens but I don’t enjoy trying to push pens on friends or family. If someone wants me to make a pen or a pen set for a Christmas gift, etc., I have asked for \$35 to \$50 a piece depending on the pen kit. I feel this is more than a fair price. If you look at the Internet or at the many fancy pen magazines, nice pens go for \$100 and up (way up). You should not expect to receive that kind of money for your pens until you are “recognized” as a quality pen maker. In the meantime, I would encourage you to hone your skills and improve the quality of your pens so you can comfortably ask \$50 and up for your product. I believe you want to separate your pens from the \$1 and \$2

pens available in all office supply stores. I don't consider myself competing with BIC or the many other mass-produced pens on the market. I rather prefer to consider myself competing with Mont Blanc, Parker, Cross, etc. A quick look at the magazines specializing in pens demonstrates that there are a lot of people willing to spend rather large sums of money on good, unique pens. I would encourage you not to sell yourself too cheaply.

If you really think that selling pens is your calling, please consider talking at length with Art Majerus who will openly share his experiences. If you "like" making pens, that is one thing. If you are considering selling pens for a profit, recognize that you will need to become a "production turner." I have attended many demonstrations at various symposiums conducted by "production turners" explaining what life is like for them. It is very clear that you need to be in your shop no later than 8 AM and you have to have X number of blanks fully prepared by lunch in order to turn pens for the rest of the day. You must select kits and blanks in bulk and process them in bulk. If you don't think you would be happy making say 25-50 pens a day and also spending the time to market them, perhaps penmaking is not your gold mine. Art Marjerus is on the road more than six months a year at juried Craft Fairs and events to market his pens. He must continue to turn pens while on the road. The short answer from my perspective is – enjoy your penturning and sell a few when you can but make pens your family, friends and associates enjoy. Selling pens for a living is an entirely different level of commitment!

#### **A Brief Discussion of Higher End Pens:**

Once you have produced a number of standard pens from kits, you may be interested in expanding your horizons. A review of virtually every issue of Woodturning Design and every catalog or magazine that covers pen making will provide you a glimpse of what can be done in "improving the breed" of turned pens. Kurt Hertzog describes this process as moving from pen turning into pen making.

At the initial end of the spectrum are the considerations for leaving out the center band or designing and making your own center bands. Many pen makers feel that the center bands provided by many or even most kits detract from the look of the beautiful wood or other material used for the pen. Consequently there are numerous articles and Internet discussions of how to eliminate or change your center band. Articles by Kurt Hertzog and Barry Gross appear in almost every issue of Woodturning Design magazine. These articles cover, in far greater detail than I can here, the specific techniques and procedures for improving your pens. Kurt writes extensively about making your own nib, designing and making closed end pens without a clip and making pens without center bands or with a center band of your making. Barry Gross provides detailed articles on making the pens with inlaid designs or patterns. These procedures are beyond the scope of this presentation but you can find out as much as you might like to know in the back issues of Woodturning Design. Several of the articles include procedures for making you own pen blanks out of everything from glued up wood, laminated materials, metal, wood shavings all the way to coffee grounds, egg shells and breakfast cereal!

One aspect of producing higher end pens becomes clear after reading many of these articles. You must look carefully at how the pen kit is put together and understand what changes must be accounted for if you are going to modify the kit. Sometimes you can eliminate the center band without adjusting the design of the blank or kit. Other kits require you to change the length of a blank or adjust the depth of the mechanism so that the pen kits actually works in the new configuration. Clearly there will be a lot of experimentation and, probably, some failures along the path of discovery. Fortunately with pen kits, failure does not cost you an especially large amount of money and may lead you to a better understanding of pen making in general.

### **An initial collection of references regarding pen making:**

I have endeavored to put together a list of instruction books, magazines, catalogs and some web sites that might be handy in researching pen making. This is absolutely not a definitive compendium of all the books, videos or web sites available on the topic of pen turning or the many aspects of pen turning but should provide a good place to start.

#### Instruction books:

*Turning Pens and Pencils* by Rex Burningham and Kip Christensen. An excellent guide especially for the beginner. This book is paralleled with two videos by the authors (both of whom work at Craft Supplies in Provo, Utah)

*Pens from the Wood Lathe* by Dick Sing Dick is one of the early purveyors of pen turning and this is a good, fundamental source.

*Unique and Unusual Pens from the Wood Lathe* by Dick Sing. This book follows on from his earlier book.

*The Pen Turners Workbook* by Barry Gross. This is another book that provides in-depth instructions and ideas for the novice turner.

There are other books on the market but I have not seen them and cannot comment meaningfully.

#### Pen Turning Videos:

*Pen Turning – A Visual Guide to Pen Making* by Barry Gross

*Turning Pens with Kip and Rex*, A set of two videos describing basic techniques, fundamentals as well as advanced techniques and design variations.

If you just “Google” the term “pen turning,” you will uncover quite a few free videos and You Tube videos covering many aspects of pen turning.

#### Pen Turning related web sites:

[www.kurthertzog.com](http://www.kurthertzog.com) -- My favorite site. Under “Pens” are numerous articles and items of great value to any pen turner. Additionally, Kurt answers questions to the extent he has time. A great source for novice through professional turners.

[www.penmakersguild.com](http://www.penmakersguild.com) – Provides educational materials for free

[www.penturners.org](http://www.penturners.org) – The International Association of Penturners is another huge pen turning community.

<http://groups.yahoo.com/group/penturners/> A huge site with a large question and answer and chat area. A source of endless information. Note that information may be worth what you pay for it, however.

[www.woodturningonline.com](http://www.woodturningonline.com) – Not just a pen turning related site but it does provide a lot of advice and information.

<http://enewbold.com/pens/PenTurningFAQ.htm> -- An excellent source of information. Provides a 14 page compendium of pen turning information, sources and assistance.

The list of all web sites associated with pen turning is almost endless. Just Google or otherwise search for “pen turning” and follow the threads.

Kit Suppliers: This is, necessarily, just a limited list. I know there are many more.

Craft Supplies USA – <http://www.woodturnerscatalog.com>

Berea Hardwoods – <http://www.bereahardwoods.com> I find Berea kits to be of high quality and reliable.

Hut Products – <http://www.hutproducts.com> One of the best aspects about the HUT catalog and kits is that they provide a detailed list of the kits and the associated bushings, drill bits, mandrels and tube sizes. I find this information to be very valuable

Penn State Industries – <http://www.pennstateind.com> A frequently updated catalog that covers much more than just pen kits.

Packard Woodworks – <http://www.packardwoodworks.com> Packard sells pen kits, tools, lathes, books, etc., and all kinds of pen supplies.

WoodTurningz – <http://www.WoodTurningz.com> A newer site that I am not familiar with yet.

Arizona Silhouette – <http://www.arizonasilhouette.com/> Arizona Silhouette is located nearby in Yuma, Arizona. It is not a shop you can visit for commercial purchases but the owner, Bill Baumbeck, is a very helpful guy who shows up at most of the woodturning shows. This is a very useful site.

Augum’s Pen Works, LLC – <http://augumspenworks.com/> A large supply of pen kits, blanks and other supplies.

